Executive Summary

Centric Consulting has had the privilege of working with leadership, staff and diverse stakeholders of the Town of Dedham "Town" and the Dedham Public Schools ("Schools" or "DPS") for the past several months as part of the Strategic IT Planning and Assessment Report Project. There is a universal desire in Dedham to improve performance at all levels. The Town and Schools face different challenges. The Town focus on IT has not been sufficient so Centric's recommendations focus on closing key gaps in order to catch up with leading municipalities and industry standards. For example, the LOGOS system from New World that is utilized by both the Town and Schools has been poorly implemented and key financial, human resources and payroll processes are not effectively automated. This is just one of several examples of how the Town and Schools can and must work together more effectively. That said, Centric recognizes the unique mission of the Town organizations and the Schools and Centric is therefore not recommending a merger of the two IT Departments at this time.

Conversely, the Dedham Public Schools has a capable and experienced Technology Team, strong IT infrastructure, and effective classroom integration. The result is that DPS is an instructional technology leader in the Commonwealth. The challenge for DPS is that preK-12 education is undergoing a period of disruptive innovation so DPS must build on its momentum to realize breakthrough teaching and learning improvements powered by technology.

Given the very different scenarios between IT in the Town and Schools, this report is divided into two distinct sections with different narrative approaches as was warranted based on the unique status and needs of the organizations. However, the Centric consultants worked closely across all of the Town and School groups to identify opportunities for collaboration which are highlighted throughout the report.

Centric is confident that the Town of Dedham and the Dedham Public Schools can individually and collectively overcome obstacles and build on strengths to effectively deploy IT in order to provide the very best possible services to the deserving citizens, students and stakeholders in the Dedham community.

Introduction

RFP History & Objectives

The Town of Dedham ("Town") is a $105 million a year municipal corporation, with approximately 750 total employees. The Town budget supports over 23 departments in addition to the Fire Department, Police Department and Dedham Public Schools ("DPS" or "Schools.") The Town is charged with the mission of providing a diverse slate of public services to a population of 24,000 residents. This mission is largely carried-out, aided, and supported by a broad and complex technology infrastructure made up of various open and secure networks; a wide array of general and specialized software application programs; many types of servers, computers, and other assorted hardware; and a cadre of specialized technical and managerial personnel who operate, maintain, and manage it all.
Information Technology services are segmented by Town and School into two separate operations:

- Town Information Systems – currently a division of Town Finance Department servicing the 14 Departments at the Town Offices, Facilities, Public Safety, Engineering, Public Works, Council on Aging, Youth Commission, Libraries and Endicott Estate;
- The Technology Department of the Dedham Public Schools – serving seven schools that cover prekindergarten thru Grade 12 (preK-12) and school administration.

In addition to support, the two IT operations independently manage the purchasing and deployment of their hardware, software applications, network infrastructure, and upgrades.

On August 4, 2014 the Town of Dedham published an RFP entitled "Town-wide Strategic Information Technology Plan".

The main objective of the final Strategic Plan is to enable the Town and Schools to effectively and efficiently leverage existing resources including but not limited to personnel, computer hardware and software applications, while laying the groundwork for newer applications, functions and evolving technologies in an organized and systematic fashion, which would include:

- an inventory and assessment of the existing technology infrastructure and related organizational structure of all Town of Dedham departments, including the Dedham Public School System;
- an assessment of each department's current and future technology related needs, identifying various challenges, emerging issues, and potential approaches;
- a review of the current organizational structure with recommendations in regards to staffing requirements for effective and efficient operations;
- recommendations for areas of process improvement; and
- a three to five-year strategic implementation plan based on results of above assessments/reviews, including projected costs and recommendations on various options for capital and operational funding.

In October 2014 the Town of Dedham selected Centric Consulting ("Centric") to create the strategic plan and initiate the data gathering phase which began on October 27th.

RFP Scope

Utilizing individual and/or group interviews, along with other diagnostic and analytic methods (see **Approach** section below) Centric was asked to generally report on all Information Technology use in the Town and Schools, being as exhaustive as possible but specifically including the items below:

Network Infrastructure	Productivity/Collaborative Tools
Servers	Business Continuity and Disaster Recovery
Applications (Server and Cloud-based)	Data Security
Computing Devices	Remote Access
Printers	Software Licensing
Storage and Backups	Policies and Procedures
Document Management/Records Retention	Help Desk & Reporting
Management Applications	New/Emerging Technologies
E-Mail	IT Organizational Structure and Staffing
Social Networking	IT Space Requirements

Project Approach

In October of 2014, Centric assigned two consultants, a municipal IT analyst (John Barker) and a K-12 IT analyst (Jim Flanagan) to assist in developing a Town-wide Strategic Information Technology Plan based on the objectives referenced above.
Centric's approach aligned the project in six stages centered on the following high-level activities:

Stage	Key Activities
Project Mobilization	• Developed initial workplan • Reviewed work performed to date by Town of Dedham and DPS • Scheduled interviews, meetings and focus groups • Collected and reviewed key technology related documents including plans, budgets, policies, inventories, organizational charts, etc. • Created key technology diagrams where none existed
Collect input from Key Stakeholders	• Developed templates for interviews, surveys and focus groups • Scheduled meetings • Conducted interviews of key staff from Town and Schools (a list of interviews can be found in **Appendix T1**) • Conducted *community* and *parent* focus groups – Town, and Schools (1 for each school) (focus group notes can be found in **Appendix T2**) • Conducted online surveys – Town and Schools separately (survey results can be found in **Appendix T3**)
Assess Current IT Capabilities in the Town and Schools	• Reviewed organization structure and IT Governance • Interviewed key IT resources • Assessed key infrastructure components including network, applications, hardware (servers & virtualized servers, desktops, printers, SAN and DASD storage), document management, electronic communications (email, texting, social networking, and collaborative applications) • Assessed if software effectively supports current core and administrative process automation • Identified external vendors & partners • Assessed personal information (PI) security compliance with Massachusetts's 201 CMR 17.00 • Reviewed business continuity & disaster recovery • Reviewed IT support processes, performance and capabilities • Benchmarked current technology standards and policies against best practices • Reviewed current IT budgets and planning process • Benchmarked resources and performance against peer organizations and industry standards (see **Appendix T4** for benchmark data)
Business and IT Support Gap Analysis	• Identified gaps between current process automation, infrastructure capacity, policies, security, etc. and standard practice and requirements • Verified if high-level technical architecture is adequate • Discussed current large projects with key stakeholders to confirm understanding of scope and magnitude and support process • Assessed via stakeholders and staff if IT support services had been adequate, timely, and successful • Discussed proposed projects and recommendations with leadership representatives from the Town and Schools
Development IT Projects Plan and Strategic Recommendations	• Analyzed whether current and planned projects will close gaps • Identified and prioritized improvement opportunities • Recommended improvement projects and estimated costs • Recommended timelines and project plan outlines for select high-priority initiatives • Worked with Town & School District leadership to develop operational and capital budget recommendations

Present Final Report and Wrap Up Project Activities	• Conducted sessions with Town & Schools leadership to review the final IT Strategic Plan document • Prepared and delivered public presentation for officials and other constituents and stakeholders in both Town and School District

Strategic Themes

The development of strategic themes of greatest importance to Dedham is key to determining future plans and efforts. A strategic theme is developed by the coalescing of multiple related stakeholder's needs and insights into a comprehensive organized guideline. This guideline is based on Centric's due diligence and the enthusiasm and feedback from Town and School stakeholders. Strategic Themes are important to understand *as drivers of change and innovation*. Every project and recommendation from Centric is tied to one or more of these strategic themes. The themes are clearly high level objectives in and of themselves, but they can also be used by the Town and Schools to help anticipate benefits and manage priorities and resources.

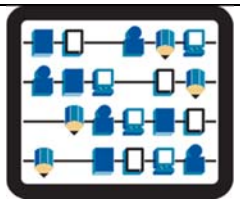
Note that each theme has a related icon, which will be utilized elsewhere in the report to identify what strategic themes are driving or reflecting any specific recommendation. The themes generally apply to the operations of both the Town and there are 3 additional themes specific to the Schools.

Icon	Strategic Theme	Best Practice and Goal State
	**Fiscal Responsibility**	•Utilize an enterprise class ERP system (Financial, Procurement, Human Resource) to efficiently and effectively manage a 100 million+ organization •'Prioritize investments in technology improvements that can be sustained by revenue or expense savings •Utilize capital funding for large multi-dept projects with positive Returns on Investment (ROI) •Seek grant opportunities whenever offered to fund technical innovation •Be accountable via certified technology tools for effective stewardship and productive deployment and consumption of town resources
	**Public Safety, Security, & Privacy**	•Improve the technology tools used to support Public Safety (Fire, Police EMS, Emer. Mgmt) •Ensure technology use that helps prepare for public emergencies •Embed critical technology in Emergency Operations •Develop policies and programs to protect data security (individual's and organizational confidential and personal information) to comply with State and Federal law

	**Stakeholder Engagement**	• Build on Dedham's history of open and participative government by utilizing technology to make town government and information easily accessible for stakeholders and staff • Provide a technical forum for stakeholder information and opinions that produce fair, equitable, balanced and inclusive decisions • Enable two-way communications between staff and stakeholders • Increase awareness in Dedham community of technology tools available to assist them in joining their representative government • Utilize technology to communicate effectively and proactively with populations • Deploy technical services to provide timely response to stakeholder requests • Increase public awareness of school needs and accomplishments.
	**eService & Transparency**	• Meeting service demands through technologies that measure and ensure customer service that is committed to quality and responsiveness • Provide access to information and services that is simple, intuitive, up-to-date • Personalization – allow citizens multiple online ways to access information and services that best meet their needs without undue delay and bureaucracy • Sustain Dedham revenue growth with technologies that make it easier to do business with the Town
	**Productivity, Performance & Innovation**	• Improve financial and business processes through the cost effective use of technology to implement process improvements & maximize workflow • Deliver effective and efficient QUALITY operations by increasing accuracy and reliability and decreasing manual hands-on time and cycle-time • Use technology to enhance performance management & productivity

	**IT Infrastructure Governance, Planning, Collaboration & Shared Services**	• Plan, develop, and maintain quality services and reliable technology infrastructure • Develop Policies that support strategic IT and organizational goals • Develop a diverse, skilled, and professional workforce that can leverage technology to be more productive • Ensure an IT Org Structure that balances resources with demand • Share resources and leverage investments across departments to support the scale and efficiency of a $100 million organization • Use technology to help provide personalized, digital training and professional development of staff • Respond to growing technology service demands through partnerships, innovation and performance management • Benchmark Dedham operations performance against leading practices and performance indicators (KPIs) • Recognizing that users are more sophisticated, plan for future tech needs around evolving strategic objectives
	**IT Applications & Technology**	• Align technology to mirror the service and strategic objectives of acknowledged leaders in municipal technology • Ensure that technologies are aligned to Dedham's strategic goals • Assess technology spending and investment in future needs • Assess the success and satisfaction of the IT staff in meeting stakeholder & staff requirements • Determine future IT staff professional development needs •
	**Legislative & Regulatory Compliance**	• Comply with all relevant State of Massachusetts laws & regulations • Comply with all relevant Federal laws & regulations

School Specific Themes

	Academic Excellence	• Expand standards-based learning • Improve performance through technology integration • Explore new applications to enhance mastery and improve math skills • Support a positive learning environment • Implement Blended Learning models as appropriate to personalize learning • Use technology to support the development and distribution of curriculum and content • Use technology to improve assessment development; feedback; analytics; and overall interoperability of systems
	**Student and Staff Access to Technology and Data**	• Expand the 1:1 initiative to ensure equitable access • Continue to upgrade technologies in the classroom and libraries • Improve the access to more timely and relevant performance data for all stakeholders
	**Teacher Recruitment and Professional Development**	• Use technology to better support the human capital lifecycle in order to support high-quality teachers in every classroom • Integrate technology into professional learning for all teachers and administrators

SECTION I – TOWN OF DEDHAM

Town of Dedham - Summary of Findings & Recommendations

Preface: This is section presents a summary of key Town findings. A more detailed analysis is in the *Findings & Recommendations* section of this document. This section adheres to the same structure around Strategic Themes as the rest of this document.

Centric appreciates that all the client departments of IT were enthusiastic and supportive of this Strategic Planning and analysis effort. Surprisingly, Centric generally found that departments were initially conservative in their expectations for how technology could improve performance. It was necessary to help them envision how new or better access to technology could help them meet their mission. Centric's advice is generally focused on meeting standard municipal technology practices so the recommendations generated are not an 'expense is no object' wish list. All of the recommendations in this document regarding non-IT departments were explored with department staff before the report was issued and Centric and the departmental staffs and Town Administration were in consensus on the need and value of the recommended changes.

- **Transparency:** One of the earliest and most compelling observations by Centric in our interactions with staff and external stakeholders was the desire to see more transparency in government through technology, and the strong desire to be able to interact with Town government electronically rather than by phone or in person.
  The transparency they seek is a public sector standard, and it ensures compliance with Massachusetts Open Records law (M.G.L. c. 30A, secs. 18-25), and Massachusetts Public Records law (G.L. c. 4, sec. 7(26)); and is therefore both reasonable and ultimately mandatory.
  Stakeholders (residents, businesses, visitors, and other members of the public) want to have a reliable posting of agendas before meetings, and minutes posted as soon as feasible, in a centralized, convenient, and easy to locate and navigate online source. Currently Dedham's website is not designed to meet those needs. Transparency also means reliable quality broadcasts of public meetings, and live and timely streaming video format from Dedham Access TV.
  Another aspect of transparency as regards Massachusetts law is the availability of public records. Currently public records on the website are difficult to locate, and many times do not exist there. As part of a larger initiative, an Enterprise Content Management system (e.g.

document management) would benefit town operations and provide stakeholders much greater access to public records electronically.

- **eService & Stakeholder Engagement:** Most Massachusetts municipalities are ahead of the Town of Dedham in eService (i.e., transactions with the Town online). Stakeholders wish to pay any fees, taxes, or other costs online via debit or credit, and to initiate on-line any of those licenses, permits, inspections, and other official transactions that create those costs. Currently the Town can only accept taxes online, and can't accept credit or debit cards on-premise at Town Hall. Requests for transactions with Town departments may or may not have downloadable forms (such as the Building Department), but the forms must still be submitted manually and cannot be processed online. An online end-to-end transaction is the 'best practice' goal.

  Another common theme with staff and external stakeholders was that of responsiveness to citizen's ("Citizen Requests.") The Town has wisely invested in an on-line Citizen Request software application (Cartegraph), but it should be deployed in all departments that handle citizen service requests now via phone or email. This Citizen Request system allows management and tracking of requests, and thus can prevent requests from falling through the cracks, and provide a record of the completed requests for auditing and reporting.

  In the public sector this theme of request management is called Citizen Services. Having a designated Citizen Services resource in Town Hall is also certainly a 'best practice' and one that Dedham should undertake. This resource can receive online requests that don't match other department criteria, emails, or calls and create a service request and route it to the appropriate party. It is a customer service role that citizens and stakeholders are coming to expect from a municipal organization whose prime responsibility is to service *them!*

- **Fiscal Responsibility & Productivity, Performance and Innovation:** At beginning of this project, we noted that Dedham had invested wisely in a tier-2 Enterprise Resource Planning ("ERP" or integrated Financial, Procurement & HR management solution) called LOGOS from New World Systems. However, due to many causes, the implementation in 2012 – 2013 was flawed or incomplete, and Town and School staff were unable to use LOGOS optimally, leaving many financial and human resource processes to remain paper-bound and lacking the financial controls that LOGOS could enforce. Key areas for reimplementation or training are Bank Reconciliation, Budgeting, Human Resource Management, Payroll, Procurement, Project Accounting, and Reporting. Collectively, proper deployment and use of LOGOS could result in large savings in operational funds and capital outlays, and help the Town stay in compliance with Massachusetts regulations and GASB standards.

Therefore Centric considers the reimplementation and training in LOGOS a critical and timely need. It is important to recognize this reimplementation and training is not just for the finance staffs of the Town and Schools, but will touch every department as it standardizes existing manual processes through the LOGOS system.

- **Public Safety, Security & Privacy:** Centric focused on how technology could be improved or implemented to better serve the each department's current mission. The areas of analysis were Police and Fire dispatch and their redundancy; emergency operations including the EOC (Emergency Operations Center) in Town Hall; generators at the EOC and designated Town shelters; and communications technology (Fire, PD, IT). Another goal is compliance with MEMA (Massachusetts Emergency Management Agency) regulations, and improving public safety and emergency responsiveness at schools and public buildings. Most of this discovery led to recommended capital projects to address technology gaps between current public safety operations and standard/benchmark practices.
  Public Safety also includes compliance with Federal and Massachusetts regulations for data security and privacy. Currently neither the Town nor Schools meet minimum data security and privacy compliance standards. This calls for a coordinated response between Town and Schools to implement procedures and processes to come into compliance. These efforts, or projects, do not require any capital outlay (with the exception of encrypted and physical security for Police servers and possibly mobile devices with personal information) but will require significant effort.

- **IT infrastructure, Governance, Applications & Technology**
  The key instigation for this Strategic Planning engagement was a clear feeling from Town staff that their IT needs were not being addressed. The consistent feedback from Town employees is that IT support, customer service and responsiveness has been poor and departments often seek internal or out-sourced alternatives.
  Before assessing Centric's findings it is important to note that the current IT Department of the Town of Dedham is functioning on a 1.35 FTE staffing level (the lowest we have found during our benchmarking of towns with similar populations and expenditures).
  Organizationally, IT reports to the Finance Department instead of directly to the Town Manager which limits the visibility and sponsorship required for IT. In addition, the Finance Department has experienced recent turnover without timely successors. Lastly, the IT Department was relocated to the High School building further impacting their ability to be timely and proactive.
  As for the actual IT infrastructure (e.g. networking & servers), we found a systems architecture that is adequately composed to meet current needs but that suffers from lack of any structured management & planning. The management gaps include an understanding of the

responsibilities of the IT department by IT leadership. Centric found numerous areas of 'single point of failure' that increase risk to the Town but had not been recognized as such by IT.

This lack of management and planning applies to the entirety of the Town IT systems and efforts. Documents and tools that are recognized as minimum support standards by the IT industry (e.g., documented polices & procedures, service-level based help desk system) have never been created by the IT team. Centric received a two-week service desk report from IT staff that demonstrated sub-par performance across the board in response time and resolution time, and which had so few tickets associated with that time period that we are forced to conclude that help desk tickets were not being logged, or that end users no longer trusted the help desk to resolve issues. See Appendix T10.

This environment of poor management and support has led other departments to turn to non-IT personnel (including managers) for answers and timely manual assistance. As a result many departments have purchased software & technologies out of their own operating funds, leading to a highly balkanized and sometimes redundant 'shadow' IT infrastructure. The IT team is aware of this inefficient trend but did not advocate for or respond to take central control of IT deployments. This resulted in a general laissez-faire approach to any Town department needs beyond basic desktop, printer, virtual server, and networking support.

Another issue is that IT has been budgeting for more expensive technologies than necessary (such as Apple desktops), and underutilizing many of the resources they do have. In terms of operational funding, IT could accomplish more of its mission using less costly hardware and software, better license management, and free or open-source tools for necessary IT governance and planning.

Many of the issues and solutions for IT in Dedham will depend on an adequately staffed department, with academic and technical certifications as necessary, and industry experience in management and planning of key technological areas. Another requirement will be a team that can proactively assist their users, and develop a reputation for service that Town departments can rely upon.

Town Project Recommendations - Overview

In addition to the specific recommendations found in the *Findings and Recommendations* section of this report (below), Centric has proposed a total of 35 distinct technology-related projects for the Town to consider. Of these projects, 14 can be funded by the Town of Dedham through operational budgets. The remaining 21 Town projects would require capital funding.

Town Project Timeline

The phasing of these projects was analyzed between Centric and the Town, and it was agreed that these project timelines provide a sufficient baseline from which the Town staff can further prioritize and adjust based on additional factors.

ID	Name	Duration	Start	Finish
1	Video Management System for Police & Schools	6 mos.	May 4, 2015	October 16, 2015
2	Create Emergency Operations Center w/ support technology	2 mos.	May 11, 2015	July 3, 2015
3	Generator Controls in Town Hall	1 mo.	December 1, 2015	December 28, 2015
4	Generator Wiring in Town Shelters	3 mos.	December 1, 2015	February 22, 2016
5	Provide legally mandated Police data security	1 mo.	May 4, 2015	May 29, 2015
6	Reclaim IT offices in Town Hall	1 mo.	May 4, 2015	May 29, 2015
7	Create true help desk	2 mos.	May 4, 2015	June 26, 2015
8	Migrate virtual servers to physical servers	2 mos.	May 4, 2015	June 26, 2015
9	Consolidate virtual servers	2 mos.	June 29, 2015	August 21, 2015
10	Library	1 mo.	May 4, 2015	May 29, 2015

11	Reconfigure & train on New World LOGOS ERP system	6 mos.	May 4, 2015	October 16, 2015
12	New World System LOGOS HR System Pilot	6 mos.	November 2, 2015	April 15, 2016
13	Implement distributed purchase orders & centralized A/P in New World LOGOS system.	3 mos.	December 1, 2015	February 22, 2016
14	New World System LOGOS Payroll Pilot	4 mos.	April 18, 2016	August 5, 2016
15	Create core network redundancy	4 mos.	June 1, 2016	September 20, 2016
16	Implement IT Governance	2 mos.	May 4, 2015	June 26, 2015
17	Business Continuity Planning	6 mos.	May 4, 2015	October 16, 2015
18	Data Security Compliance	6 mos.	May 4, 2015	October 16, 2015
19	Enterprise Content Management (i.e. Document Management)	18 mos.	December 1, 2015	April 17, 2017
20	Update Dedham Community Television Equipment	6 mos.	May 1, 2015	October 15, 2015
21	Create redundancy in Police / Fire dispatch center	2 mos.	December 1, 2015	January 25, 2016
22	Create fiber legs between spokes of the Dedham fiber network to turn hub-spoke topology into a full or partial mesh model.	1 mo.	December 1, 2015	December 28, 2015
23	New Citizen-centric website	5 mos.	December 1, 2015	April 18, 2016
24	Implement License, Permitting, and Code Enforcement system.	18 mos.	December 1, 2015	April 17, 2017

25	Implement Citizen Request Management system in all relevant departments	12 mos.	December 1, 2015	October 31, 2016
26	Implement Citizen Engagement system	2 mos.	December 1, 2015	January 25, 2016
27	Citizen Services Office	4 mos.	February 1, 2016	May 20, 2016
28	Migrate to new 3rd party payment processor	3 mos.	June 1, 2015	August 21, 2015
29	Implement Cash & Payment Mgmt in Town Hall offices	3 mos.	August 24, 2015	November 13, 2015
30	Consolidated Police & Fire Computer Aided Dispatch (Cad)	12 mons	January 25, 2016	December 23, 2016
31	Purchase Plotter/Scanner for Town Hall.	1 mo.	December 1, 2015	December 28, 2015
32	Town of Dedham offices printer consolidation.	4 mos.	June 1, 2015	September 18, 2015
33	Select a new PC and laptop platform, and tie to a five year refreshment cycle.	1 mo.	June 1, 2015	June 26, 2015
34	Deploy non-Windows application suites on select desktops.	1 mo.	June 29, 2015	July 24, 2015
35	Touchscreen monitors in the downstairs conference room of Town Hall	2 mos.	December 1, 2015	January 25, 2016

*A more detailed version of the projects & timeline with descriptions and GANTT chart are in in **APPENDIX T5**.*

Findings & Recommendations – Town of Dedham

Centric has identified several strategic themes based on a review of documents, input from many stakeholder groups, and due diligence. Strategic themes are important to understand *as drivers of change and innovation*. Every project and recommendation from Centric is tied to one or more of these strategic themes.

Centric has analyzed the use of technology in all Town departments and offices to identify gaps between the maturity level of the Town's use of technology and municipal government technology 'best practices', and propose improvements or provide strategic advice to close those gaps. We have broken this analysis out based on those strategic themes to illustrate the alignment of findings and recommendations.

This strategic assessment and management framework should allow the Town to determine which strategic goals should take precedence and which recommendations and proposed projects should be prioritized to meet these goals.

Throughout the Findings and Recommendations below you will find reference to specific projects identified for the Town. These will be identified in red, and can be cross-referenced for understanding.

Fiscal Responsibility

3 Key Opportunities:
1. Complete the implementation of LOGOS Procurement module 2. Implement LOGOS Payroll & Timekeeping module 3. Train and begin using LOGOS Reporting Tools

The strategic theme of fiscal responsibility is of primary importance. While many residents think of the primary role of municipal government as one of providing services (trash pickup, plowing, parks, public safety, etc.), it is also important that the Town exercise a high degree of fiscal responsibility to ensure the future availability of those services. Fiscal responsibility is an obligation of all staff and departments, not merely Finance. Therefore many of Centric's findings and recommendations regarding fiscal responsibility should be applied throughout the organization.

Centric's discovery process occurred during a time of uncertainty and transition for town staff, especially related to Finance. The Town Finance Director and Town Manager positions were vacant resulting in strategic and tactical challenges for the staff. We also noted that the recent change of financial systems (2012) led to a problem of standardization of fiscal management procedures. Departments continued to handle their funds and transactions as they deemed appropriate as long as some level of manual reporting back to Finance was occurring. The result of this is a fiscal operation where much of the processing is still manual, duplicative, and in some cases key processes of fiscal management were not being recognized at all.

There are however strengths in the Fiscal area that can be leveraged to meet a new strategic focus.

- Finance department staff are competent and diligent as they work within the current procedural framework.

- Finance staff (and most other Department Directors and Managers interviewed) understood that current processes are contrary to best practices even though possibly more expedient.
- The Town has invested in 2012 in a tier-2 ERP (financial, procurement, and HR/payroll) application (LOGOS) that offers a strong array of modules to automate many of the manual processes being performed by staff. Also, the Town is fortunate to have a Finance staff who are receptive to new systems and procedures, because this is key to improving fiscal responsibility.
- Most senior staff expressed their hope that LOGOS would serve as an effective financial management tool that could more appropriately and efficiently handle transactions and provide timely data on their fiscal operations (e.g. expenditures against total budget.)

Here are findings and recommendations specific to the following financial functions: payroll and timekeeping; procurement; collections and cash management; budgeting; reporting; fiscal process documentation and training.

Resources:

- Example: Finance KPIs & Benchmarks
- Managing Municipal Performance – a Google Book
- Live Demo of Performance Management Dashboard for Local Gov

Payroll & timekeeping

FINDING(S) - Payroll and timekeeping are mostly manual processes in Departments. A paper timesheet or Excel spreadsheet (created from a paper form(s)) will be delivered midweek to the payroll administrator in the Treasurer/Collector's office. In most cases the time records were collected by an administrative assistant from manual sources, and then a spreadsheet or time report is manually created. There is no consistent managerial approval process across departments, and sick, vacation, and personal time accruals are not *centrally* recorded and tracked. This results in the Town's primarily hourly-based payroll being processed as if was salaried with all employees paid on a consistent 40 hour basis. Employees are paid during their current pay periods (i.e., prior to some actual work) and thus time records reported to Payroll are only estimates for that week. Accruals and time discrepancies are managed after the fact and thus open to errors, unintentional or otherwise, that lead to additional expense for the Town. This payment practice has been determined by the Department of Revenue as being out of compliance with Massachusetts law (M.G.L. c. 41 section 56). Similarly unused accruals are an accounting liability for the Town, and decentralized timekeeping at the Departments leads to risk of overpayment of payroll, and the inability to timely manage accruals. In a nutshell Centric is asserting that expensive timekeeping errors are common, a fact reflected in the claims for unused accrual balances from terminated employees that HR routinely sees. HR feels that they are potentially overstated yet they have no central time records with accruals to challenge those payments.

RECOMMENDATION(S) - Payroll & timekeeping are routinely automated at any mid-sized municipality like Dedham, and not subject to multiple manual steps for accrual and time balancing and approvals. Currently at Dedham the Harper's Millenium application is used to record time and accruals after the fact (via a web applet with manual input), and Harper's is responsible for producing the paycheck that is submitted to the employee. Unfortunately since Harper's ia not

currently configured to record or manage the accruals, the employee payroll check is lacking year-to-date totals that employees should see on their paycheck. Centric recommends that the payroll and timekeeping module which was purchased with the LOGOS system be deployed on an initial pilot, then migrated to a permanent payroll mechanism. If the Town or Schools wish to process payroll checks directly in-house that module can handle it, however if they wish to continue using Harper's for offsite printing of payroll that too is possible without difficultly. What does need to be recognized is that this implementation of LOGOS payroll & timekeeping cannot be made until all employee payroll schedules align with Massachusetts law (M.G.L. c. 41 section 56) and are processed weekly or bi-weekly after the work-week that the payroll record represents. In other words, employees can no longer receive a payment on Friday for work completed in that same week since payroll processing timelines do not allow for reporting and recording of accruals and time records in the same week.

Procurement

FINDING(S) – In spite of the Town's written *Purchasing Policies & Procedures* guide, which calls for the Town Administrator or Designee to be Chief Procurement Officer, procurement is managed manually by each individual department using their own procedures. Purchase orders are only utilized by some departments even though they are required for all purchases by bylaw Article III sec 39-21. Accounts Payable is also decentralized, so without a purchase order until a request for a check is submitted to Finance, there is no guarantee of proper fund encumbrances being made. If encumbrances are not made at time of issuance of a PO, budgets can be exceeded before the over-allocation is recognized by Finance. In addition, without consistent use of purchase orders and a centralized accounts payable function, State and Town bid and procurement approval requirements cannot be centrally tracked and enforced. Purchase orders should provide a two-way invoice matching mechanism (best practice). The Purchase Order indicates the product, price, and quantity; receipt of the order in a procurement system which allows the department to record quantity and delivery, and address any backorders or under-orders. When the invoice is sent by vendor to Finance, the invoice can then be 'matched' against the PO and the receiving record to ensure payment is authorized. At this time without POs there is no fiscal control is in place to ensure services or product was delivered, in spite of an invoice being submitted for payment. Also the benefit of net payment terms might be lost if the invoice is not immediately processed by the Department. This issue of decentralized controls can be seen in the use of Town credit cards, where payment is made on the card based solely on the credit card statement, without receipts and without any formal oversight or approval process to ensure the purchase is appropriate. Lastly, the Town is utilizing 'blanket POs' which have no set allocation and encumbrance, and thus can accumulate expense in excess of planned budget appropriation, and may only be recognized fiscally at the time of closure of the books.

RECOMMENDATION(S) – The Town's written *Purchasing Policies & Procedures* guide should be revisited to ensure that it requires a purchase order for any purchase over a minimum amount. A Chief Procurement Officer (CPO) should be named to oversee the procedures, and to assist in creating a new procurement system. The Town has a capable procurement system in the LOGOS product. The CPO should work with the New World vendor to mandate POs be created in the LOGOS system and to set dollar and other limits on purchasers that can only be authorized by an online approval from the appropriate manager. Purchase orders would be tied to accounts for

encumbrance so that no purchases can be made without fund availability. Receipts of purchases should be recorded by the purchasing department so that errors or backorders are recognized. Invoices should be processed centrally by accounts payable staff when the PO and receipt match invoice (of course partial payments would be possible.) Accounts payable staff should process invoices in a timely manner and take the financial benefit of net payment terms. Lastly, 'blanket purchase orders' should be replaced by 'open POs' with budgeted encumbrances paid by partial invoices to ensure no overbudget procurement slips by. There are also benefits in the creation and maintenance of a single vendor master list by Finance or the CPO after a vendor has validated their financial information for reporting purposes. ***See Project 13 "Implement Distributed Purchase Orders & Centralized A/P in New World LOGOS system" for further details.***

Collections & Cash Management

FINDING(S) – Collection of revenue (except for taxes) is handled either at the relevant department or directly at the Treasurer/Collector's office. Online payments are used for approximately half of all tax payments and the rest are via manual transactions at the Treasurer/Collector's office. Collections by other departments are manual and also require cash or check only, and some departments try to avoid any collections. While manual collections of revenue (fees, processing costs, etc.) are currently the standard process, cash control standards that provide for auditing and accountability should be redefined and issued via a cash management policy. This would include segregation of cash receiving by employee (separate cash registers/boxes proofed at the end of each day or shift), and segregation of collections responsibilities from the posting of those collections into the financial system. Collections by different staff are placed in a single source undifferentiated by clerk. Proofing of collections to receipts are made by the same clerks. Currently collections are usually aggregated weekly and submitted to the Treasurer's Office via a treasury receipt. Centric has observed no controls in place, outside of manual procedures at each department, to proof out all collections against matching revenue transactions on the treasury receipt (i.e. collections can occur that are not accounted for on the treasury receipts), or to proof out those collections by clerk rather than by just department. This creates a risk of intentional or unintentional revenue loss or misappropriation, and the inability to pinpoint the area where the loss occurred.

RECOMMENDATION(S) – At a later point, Centric will make recommendations regarding payment options. Here we make the recommendation that any collections should be made via a point-of-sale computer system (easily made by the addition of a cash drawer and printer connected to an existing PC) that can generate a record of collections and print out a proofing report. We also recommend that any department that receives cash or checks be supplied with a decommissioned PC that can be used as a 'kiosk' by customers for payments electronically instead of just cash or check.

Budgeting

FINDING(S) - Budgeting is a manual process whereby all departments submit their budget numbers via a spreadsheet, which are collected and compiled from departments and are transferred manually into the LOGOS system only after being voted on and authorized. This means that

Dedham Finance does not have single source history of the recommended vs. authorized budget. Also, the budget reflects a chart of accounts that may be too high level for detailed appropriations tracking. A flatter COA may be easier to manage, but it inhibits a more detailed level of funds appropriation that would better allow Administration and the Board of Selectmen to understand the budget components of a department's allocation. For example, the 2015 operating budget for the IT department lists $413,107 dollars under the code 5316 "Technology Support", without any detail of how the total will be appropriated to lower level operating accounts.

RECOMMENDATION(S) – The Town of Dedham should utilize the LOGOS system budgeting module to enable more efficient distributed budgeting by department. However it may be necessary to revisit the design of the Chart of Accounts to ensure that sufficient detail is available for Administration and the BOS to assess and approve an appropriation.

Reporting

FINDING(S) – An effective finance organization must be able to develop and submit fiscal information in specific report structures and formats. Even a monthly trial balance is actually a reporting function. It was reported to Centric that many of the standard reports included in LOGOS did not provide the level of detail needed by the Finance Department, and that in some cases the data in the reports did not match manual calculations off the general and subordinate ledgers. If a financial management system cannot provide the detail necessary for periodic reports necessary to a fiscal operation, then either the work of preparing numbers may be inefficient, or the results of the reports suspect.

RECOMMENDATION(S) - It is Centric's strong recommendation that all of the Finance Department staff receive training in LOGOS' 100+ standard reports, and in how to use the dynamic reporting tool included in the LOGOS package as purchased by the Town. When a level of skill and familiarity with the dynamic reporting has been achieved, the Town should consider adopting LOGOS' Decision Support & Dashboards tool to provide simplified ad-hoc reporting, and create simple dashboards that will show Town financial metrics in a graphical and easy to digest format.

Public Safety, Security, & Privacy

3 Key Opportunities:
1. Address gaps in Emergency Operations planning & implementation 2. Create a Public Safety VMS (Video Mgmt System) 3. Address lack of tools and redundancy in Police & Fire Dispatch

In February 2012 an "Analysis of Data for Police Department Activities" was commissioned and delivered by the Municipal Resources, Inc. (MRI) of Meredith, NH. Concurrently to that an assessment of the Fire Department Activities was performed by MRI in February 2012. Therefore the focus of Centric was on those Fire and Police and EMS operations activities that utilize technology to function. We did not explore non-IP (i.e. computer based) telecommunications such as P25 radio communications, leaving those areas to continue to implement the suggestions of MRI and the ongoing recommendations of the FCC and the National Public Safety Telecommunications Council as well as the local requirements and recommendations of the Massachusetts Emergency Management Agency (MEMA).

Since the Town of Dedham operates a PSAP (Public Safety Answering Point) in their Police building dispatch room, it is a critical area for current and evolving technologies to be implemented so we assessed that status. This PSAP handles Dedham area 911 calls and dispatches Police, Fire, and EMS units.

Public safety also incorporates all aspects of Emergency Operations including: management and maintenance of the Municipal Emergency Response Plan; technology use in Emergency Operations centers; public communications tools; the status of designated Town Shelters; and compliance with MEMA (Massachusetts Emergency Management Agency) regulations. Most of this discovery led to recommended capital projects to address technology gaps between current public safety operations and standard/benchmark practices.

Public Safety as defined in this Strategic Plan and assessment also includes compliance with Federal and Massachusetts regulations for data security and privacy to meet Massachusetts standards under 201 CMR 17.

Many of the recommendations are not especially expensive but they can involve supplementing public safety budgets in order to use new software packages or technologies. The scope of a technologically-based public safety initiative should be based on access to funding in conjunction with needs assessment. Money should be spent where it will be most effective. .

For all projects recommended, public safety agencies should pursue funding through grants from the Department of Justice and the National Telecommunications and Information Administration, as well as Massachusetts Executive Office of Public Safety and Security – Office of Grants and Research.

Resources:

- Best Practices in Local Government
- CAD Software Primer
- Guide to CAD Software Purchasing
- Case Study - Designing an Effective EOC

Emergency Operations Response Planning

FINDING(S) – One individual in every municipality must be designated the Emergency Operations Director and there should be an Emergency Operations Coordinator. Currently Fire Chief William F. Spillane is holding both positions. A Public Information Officer (PIO) should also be designated but that position is unfilled and it therefore falls to the Town Manager. The Emergency Operations Response Plan should be a living document, maintained with up to date information on the resources to be utilized in an emergency, as well as the appropriate reporting and command and control structure. However a review of the Plan shows some of the information is old and outdated and critical positions and resources are not identified in the plan.

RECOMMENDATION(S) –

- Revisit and update the plan accordingly, including designating appropriate individuals for critical roles, and validating the viability of emergency routes, and emergency shelters.
- A Public Information plan must be implemented. It should include designation of the PIO and identification of public emergency communication mechanisms, such as the Town website, the existing Code Red system, local low-power commercial radio providers, and Dedham TV (the official video community access franchisee).
- Dedham TV must update their broadcast technology in the EOC such that an emergency video broadcast (as well as ticker) can be initiated and displayed under the direction of the PIO.

Emergency Operations Center

FINDING(S) – Currently the designated Emergency Operations Center is the large conference/meeting room in the basement of Town Hall. There are no documented procedures to activate the EOC and no documented procedures to equip the EOC to provide the required central emergency coordination.

RECOMMENDATION(S) –

- The Emergency Operations Center should have a layout diagram created to indicate where appropriate staff should be situated. This is particularly important in regard to whether staff need access to a power outlet or phone or network outlet. This should be created by the EOC Director.
- Create a locked 'tech crash cart' containing laptops & wireless access points that can be pushed into the EOC for use during an emergency. The cart should contain essential technology items that should be available and secured for any activation. The cart must include written instructions for the layman to utilize power and network capabilities as well as written instructions for the use of the Dedham TV broadcast equipment and the two wall mounted monitors. This should be created by the IT Department. ***See Project 2 "Create Emergency Operations Center support technology" for further details.***

Emergency Operations Generators

FINDING(S) - Currently few of the Town generators designated for use at shelters, the EOC, and Police and Fire are exercised and tested end to end throughout the year. Some of the generators are turned on manually or automatically monthly to ensure they run. However, aside from the Middle School and the PD there is no testing of the Transfer Switches and no testing of the circuits they are supposed to power, nor are those circuits labeled or documented in as-built diagrams. In fact, the PD reports that the generator powers some lights at the station, but the computer network equipment is not on a powered circuit and goes down when the generator is powered. This also highlights the fact that UPS (Uninterruptable Power Supply) units (essentially batteries that power computer equipment until power is restored by generator or main), are not deployed in all needed areas, and in most cases are not tested regularly.

RECOMMENDATION(S) –

- Every EOC or critical operations generator (Town Hall, Fire, Police, Middle School, High School) should have an automated module that exercises the generators on a predetermined schedule, and ensures that transfer switches are engaged at that time. These modules should be hooked up to an Internet connection, so that logs of the generator's operation can be sent to Facilities and other necessary staff. ***See Project 3 "Generator Controls in Town Hall" for further details***.
- The IT departments of the Town and Schools need to have a periodic end-to-end test of the generators, transfer switches, and UPS systems (batteries) to ensure that a brownout or surge will be isolated from critical IT infrastructure. It should also be determined and logged how long the infrastructure will function on batteries alone should the transfer switch not automatically engage.
- For all sites (except the Middle School which has diagrams), an electrical engineer should be engaged to diagram out which circuits are powered by these generators, and to label each of those applicable outlets. Before finishing the engagement, the engineer should add any circuits as may be designated by Facilities as necessary for Emergency Operations use. ***See Project 4 "Generator Wiring in Town Shelters" for further details.***

Public Safety Video Monitoring

FINDING(S) – While statistically school shootings such as at the Sandy Hook Elementary School in Connecticut are rare, FactCheck.org reports that as of June 10, 2014 there had been an additional 34 school shootings since the Sandy Hook tragedy. Many of Dedham's schools, and a few public buildings, have had security cameras installed. However none of them can be centrally monitored and few are integrated with access control locks in school buildings (to digitally record door opening events on the video stream). The Dedham Police would have no visibility into a violent situation on school grounds, either at a central location, nor in the patrol vehicles.

RECOMMENDATION(S) –

- All security cameras at the Town of Dedham public buildings, or at any of the Dedham Schools, should be connected to the Town broadband network and aggregated into a central monitoring console at the Police Dispatch office, and at the School Business offices for

school cameras. This would require installation of new DVRS and a Video Management System (VMS) that would serve those needs. This system would be IP-based and access controlled via authorized logins. All VMS systems will allow video viewing at any authorized computer via web site or client software, depending on password access. Many VMS systems will support tablets and smartphones for authorized viewing access as well. Video would be recorded and stored as long as deemed necessary, and used to help curtail or address violent situations. It has also been shown that VMS systems improve employee productivity and help alleviate false claims of injury or other crimes. ***See Project 1 "Video Management System for Police & Schools" for further details.***

- Any existing access control system in the Schools should be integrated with the VMS so that (a) door open and door lock events can be bookmarked on the stored video stream, and (b) a 'lock-down' could be initiated when a danger is recognized via the video console.
- For those patrol vehicles equipped with computers, it is possible to configure them to provide on-demand access to video cameras when responding to an appropriately critical call.

Fire Department CAD and Computer Technology

FINDING(S) – Most of the procedures at the Fire Department are either wholly or partially manual. The Fire Department has implemented Firehouse (software trade name) for (a) maintaining and completing reporting requirements (like NFIRS), (b) maintaining an RMS (records management system) to store information like firebox location, and premise information (residents, disabled, toxic and hazardous materials onsite, etc.); and (c) for maintaining a roster-based schedule of duty staff. They have also implemented a dedicated Fire CAD system called Symposium, which imports RMS data from Firehouse, and uses the Town's GIS mapping for geolocation.

In spite of these technology implementations, the systems should be updated (as regards outdated RMS data), and used for their intended purposes. For example, Firehouse is capable of creating a duty roster based on staff schedules, which can be used to generate payroll, as well as to provide a staff roster to Symposium for the dispatchers see in the CAD system directly. Instead payroll is maintained on paper, punched into Firehouse schedule module, and then manually extracted from Firehouse. The information is then given to the Fire Department Administrative Assistant to create a timesheet for Town payroll. Further, the Firehouse schedule is only up to date on actual schedules and rosters at payroll time, otherwise it is not an accurate record of staffing by unit. Thus Firehouse passes invalid fire unit staffing information to Symposium CAD system. To address this another manual process is implemented whereby a manual roster is faxed inconsistently to Dispatch, so they know which units are staffed by whom.

Each of the fire units is equipped with a mobile data unit (MDUs) tied into the Symposium CAD system. The intent is to provide a mechanism for responders to indicate their time of arrival, time onsite, and time of departure. The MDUs are also able to show RMS data to units on dispatch and onsite. However these units, which are touchscreen, are not optimized for use in a moving vehicle while other duties are being performed so they are effectively not used by staff on the whole. This requires that the Fire Dispatcher handle all notifications and time records (which has led to friction among the Fire and Dispatch staff.)

RECOMMENDATION(S) -

- Several Fire Department staff members must be trained in the proper use and maintenance of the Firehouse and Symposium software. Currently only Don Beltis is able to operate the software and he will be retiring soon.
- Symposium's CAD system should be updated with the latest Town of Dedham GIS maps.
- Firehouse software must have all of its RMS data reviewed and updated to provide timely safety information to responding firemen
- Firehouse software should become the first and only system of record for Fire Roster scheduling and time reporting to payroll. This will also ensure that correct rosters are incorporated into Symposium.
- I.T. should explore integrating Firehouse into LOGOS payroll through a scheduled file feed.
- A copy of the Firehouse software should be provided in both Fire houses for the use of reporting and record keeping
- The Fire Department should collaborate with IT to explore utilizing non-vendor specific MDUs (perhaps tablets) that can run the Symposium software as well as provide for better ergonomics and the ability to be used for other operations such as remote Firehouse, Google Earth, etc.

Police Dispatch and Technology

FINDING(S) – The Police dispatch center houses Police, Fire and EMS dispatch. As a PSAP, this dispatch center handles 911 calls (although MOUs with other municipalities provide backup should the Dedham PSAP be inoperable). A major concern, also expressed by MRI in their 2012 report, is that dispatch is physically segregated between Fire and Police. One dispatch station serves Police only and is only equipped with Police CAD hardware and software. The other dispatch station is configured for Fire dispatch only and is equipped with the Symposium Fire CAD system, and other Fire specific controls and equipment. There is a third dispatch station present, but it is not configured completely and therefore can't readily support either Police or Fire dispatch. Other finding are as follows:

- Police Dispatch uses the PAMET CAD system, which includes dispatch, RMS data, and official reporting. Unfortunately the RMS data is not shared with the Firehouse system and thus not consistent between PAMET and Symposium. PAMET also uses Google Earth for its maps and routing, while Symposium uses the Town's GIS maps.
- Police and Fire dispatch are operating using computer equipment over five years old.
- Police and Fire dispatch do not have a common printer for alert and report generation.
- For the most part, while the dispatchers are familiar enough with both Police and Fire dispatch to man either station, they must shuttle back and forth to do so when one dispatcher is out of the office.
- Police cruisers are equipped with digital radio Mobile Data Units (MDUs) but frequent issues with the PAMET XMobile software, or with network connectivity to the state, can make this difficult. Problems are especially apparent after unannounced network or firewall changes.

RECOMMENDATION(S) –

- The police dispatch center is a source of significant overtime. Therefore it is a strong recommendation from Centric that the segregation between Fire and Police dispatch is removed and that each of the two stations, Fire and Police, have fully redundant equipment

to serve either of the dispatch functions. It may thus be possible to explore having low call volume shifts staffed by one dispatcher who can access both systems. ***See Project 21 "Create redundancy in Police / Fire Dispatch System" for further details.***

- The State of Massachusetts provides annual funds to each PSAP to use for dispatch technology, training, and staffing. These funds should be used this year to replace the five older computers left from a state grant five years ago and to purchase a WiFi enabled printer that will allow printing from any station.
- Currently all desktop and network support operations for the Police are outsourced to an IT services provider (Hubtech). As soon as feasible this support should be resumed by the Town IT staff. *However it is important to stress that Public Safety should be a TOP concern for IT staff, and IT service systems and procedures should be defined to ensure that PD and Fire get the urgent response they need to support life, limb, and property. There should be an immediate response from IT to any issue that impacts mission critical tasks in Public Safety.*
- Currently fire alarm servers are situated at the main Firehouse, and wired to the dispatch room at the Police Station. So there is a segregation of alarm & control equipment between Fire and Police dispatch, as well as a segregation of CAD systems between Fire's Symposium and Police's PAMET software. Centric is recommending that when the Police Department is relocated to the former Town Hall building in 2016, that
  - all fire alarm alert and control equipment be moved from the main Firehouse to the new PD building; and,
  - that an *integrated* Fire & Police CAD dispatch system be acquired (of which there are many highly esteemed products), which would allow the use of one common RMS database for ease of maintenance, and allow the common use of the Town's GIS mapping. Common GIS mapping would permit the graphical display of current roadwork and closed roads for use by Police and Fire units when dispatching them to a location (an especially useful feature for Emergency Operations situations.) ***See Project 30 "Consolidated Police & Fire Computer Aided Dispatch (CAD)" for further details.***
- Town Police should continue to explore the use of tablets instead of MDUs in patrol vehicles and community policing. The PD reports that PAMET is developing an app to access their software from a tablet (versus running the tablet as a workstation through Remote Desktop Services).
- Town Police & Fire should explore the current status of regional PSAPs and if feasible migrate Dedham's PSAP duties to the regional PSAP (it is rumored that Canton Mass is exploring such a regional PSAP).

Data Privacy and Security

FINDING(S) – Another aspect of Public Safety is the security of an individual's personal data on any Town or School computer. The Town and School must be in compliance with Federal and Massachusetts regulations for data security and privacy to meet Massachusetts standards under 201 CMR 17. Toward that purpose Centric security analyst Gus Deeb performed a security assessment of

both the Town and School IT departments. While neither the Schools nor the Town met the entire Massachusetts standard, the School's IT Department was further along on the spectrum of compliance.

RECOMMENDATION(S) –

- Appendix T6 contains specific material actions necessary to be performed by IT staff to migrate into compliance with Massachusetts standards under 201 CMR 17.
- As a result of the 2012 MRI report, the Police department servers were moved to the computer room at Town Hall. However the law requires that Police servers are both physically secured from tampering as well as have encrypted connections between the PD offices and the servers at Town Hall. Centric recommends as a regulatory requirement that police servers be moved from virtual to physical servers, stored in locked racks, and have an encrypted connection between servers and the PD. ***See Project 5 "Provide legally mandated Police Data Security" for further details.***

Town of Dedham Website and Public Safety

RECOMMENDATION(S) – Elsewhere in this report, Centric strongly recommends a complete overhaul of the Town website. During that redesign, the following Public Safety features should be added:

- A highly visible Emergency Status header should appear on ALL pages of the website when triggered by an EOC request.
- A Safe Routes page should be created with the help of Town GIS
- An Emergency Operations webpage(s) should be created and maintained with relevant contact information, and information on what radio, television, and Internet mechanisms are available for alerting and updating residents and businesses.
- A Frequently Asked Questions (FAQ) page should be created to answer questions likely during an emergency.

Stakeholder Engagement

3 Key Opportunities:
1. Implement Citizen Services P/T position 2. Migrate the Town website to a municipal government purpose-built application 3. Leverage existing Citizen Service Request tool in every department that receives requests

Stakeholder engagement refers to more than just providing better information online. First Dedham should recognize that *all* of Dedham's residents, employees and owners of Dedham businesses, visitors to Dedham, and individuals using Dedham services (including roads) are a *stakeholder* in the success of Dedham in meeting their expectations and providing quality services that support them. Stakeholder engagement is not passive; engagement is a bilateral process. The goal is to better provide stakeholders' services, so in modern municipal government this is referred to as *Citizen Services*. It should be a role and function of municipal government, not merely a concept. The primary goal is to ensure that the public has a unified experience when accessing information from municipal government from the web, in print, and over the telephone or mobile devices (there is more to a Citizen Services strategy than merely placing online information in better or more intuitive formats).
One upside to Citizen Services is in joining the conversations that stakeholders are already having about the Town online, and being able to help demonstrate to citizens the *value* in the efforts that the Town is taking to make government better.

Resources:

- Communication and Citizen Participation
- 10 Lessons in More Engaging Citizen Engagement
- Online Civic Engagement: The Emerging Trend

Citizen Services

FINDING(S) – Centric has recognized through our focus groups, online surveys, and in interviews with Town staff that one common theme for improvement in the Town was that of responsiveness to citizen needs ("Citizen Requests") either via electronic media or in many cases via an actual staff member. This resource can receive online requests, emails, or calls that don't match other department criteria, and create a service request and route it to the appropriate party. It is a customer service role that citizens and stakeholders have observed in surrounding communities and therefore expect from a municipal organization whose prime responsibility is to service these citizens and stakeholders.
Town staff such as Economic Development, Planning, Environmental Services, Health, etc. have expressed a need for an online mechanism to allow stakeholders to: propose or comment on recommendations for planning or development of a parcel or asset; provide a free ability to post comments, suggestions; and permit electronic polling on proposals for procedures or planning.

RECOMMENDATION(S) –

- Centric strongly recommends that the Town of Dedham provide a part-time resource to bridge the gap between individual and government by providing information, and effectively and efficiently registering and routing citizen requests. The role would also be responsible to maintain Citizen Services content on the website, and to provide Town Administration and Departments with metrics on citizen requests and service performance. ***See Project 27 "Citizen Services Office" for further details.***
- The Town website redesign should highlight Citizen Services to recognize that there is more to a digital services strategy than merely placing more information online. The website should be designed to draw citizens and stakeholders to this portal to interact with the Town.

Town of Dedham Website

FINDING(S) – Through direct interaction, interviews with Town staff, focus group findings, and electronic survey results, Centric has recognized that the current Town website, while formerly sufficient, no longer meets the needs and expectations of users.

- There is a critical lack of an official webmaster for the Town website appointed to help ensure that the site is adequately configured, and content updated by the responsible parties. Currently a role has been undertaken part-time by Lisa Bazinet as the Town Web & Social Media Coordinator (who is also a part-time administrator in the Environmental Department). Ms. Bazinet is more than capable but has not been given the authority and redefined responsibilities within her many other responsibilities to officially hold this new part-time (18 – 20 hr) role as webmaster.
- There is no distributed responsibility for individual Departments and officers of the Town to maintain their own website content. Thus most of the content is stale and less informative than appropriate unless the Town Web & Social Media Coordinator has been tasked with updating it. Each Department must be responsible for the important content that they are best qualified to represent.
- The website is platformed on a Content Management System (CMS) from a local firm GetFused. This CMS is not as intuitive and flexible as necessary for a town of Dedham's size, or a distributed content model. In addition, while GetFused charges a smaller monthly service fee, GetFused will provide no assistance with their CMS without time & materials costs in addition to the monthly service fees.
- The GetFused CMS is run on a multi-tenant hosted server. This means that any problems that impact one of the tenant website modules affects all the other tenants. Centric observed in December 2014 that a ballooning process on one of the other GetFused tenants caused the Town website to become slow and unresponsive for many days until the problem with the other tenant was addressed.
- In spite of the need for performance metrics for the Town's GetFused website, GetFused has not properly enabled the use of the *free* Google Analytics application, and will not do so without substantial additional investment by the Town in this "new" application. This position is puzzling since the application of Google Analytics had already been started on the Town website in the past, and merely needed simple updating. Centric was able to gather some basic metrics from the Google Analytics version in place, which demonstrated that the website was being underutilized by stakeholders, and services that routinely draw many hits

at other communities were not being used by Town stakeholders, indicating a real opportunity to expand the website as a tool for official communication.

- The Town website would be better served by a municipal-government focused design and consistency in content and searchability. Currently critical elements such as meeting agendas and minutes are frequently not available for upcoming and past meetings.

RECOMMENDATION(S) –

- Centric strongly recommends that the Town of Dedham create an RFP for a more purpose built municipal-government CMS and hosting partner. Web & Social Media Coordinator Liza Bazinet has identified a number of more appropriate providers (a sample RFP is available from Centric as part of this assessment.) It is important to recognize however that migrating to a new CMS and hosting partner is not a trivial project. All content from the existing CMS must be moved, departmental and services content must be updated at that time, and official information and documents stored and indexed for ease of recovery in search mode. ***See Project 23 "New Citizen-centric Website" for further details.***
- The Town website should include in its new website RFP a request for a citizen-focused bilateral online communication tool to allow stakeholders to propose or comment on recommendations for planning or development of a parcel or asset, as well as the ability to post comments, suggestions, and permit electronic polling on proposals. This would be a Social Media focused module built into the Town website. Town staff such as Economic Development, Planning, Environmental Services, Health, etc. feel this is critical. ***See Project 26 "Implement Citizen Engagement system" for more details.***

Citizen Request Tool

FINDING(S) – In 2014 the leadership of the Department of Public Works and Town GIS wisely invested in a full-featured Citizen Request Service software application called Cartegraph. While this application was not purchased under collaboration with the IT Department, it was a judicious choice. Centric has been impressed with its ability to handle Citizen Requests as well as the assets and resources that are used to address those requests. The software was deployed at the end of 2014 and can be accessed from the website under the "Your Gov" logo below Newsletter Sign Up. The application leverages the significant investment that the Town has made in the ESRI GIS application so that citizen requests can be geo-located for ease in finding and resolving them. The Cartegraph package also includes additional modules like Fleet Management, and Asset Management (asset in the physical sense of the term not fiscal), and other useful features. In the 2015 budget the Town purchased a site license of the Cartegraph software so that it may be used by other logical departments such as Parks & Rec, and Facilities. However at its core it can be a simple online tool for stakeholders to submit virtually any request.

RECOMMENDATION(S) – The Town should continue to leverage this investment, and its cross-departmental collaborative utility by:

- Migrating the Parks & Recreation Department to Cartegraph.
- Migrating the Facilities Department to Cartegraph
- Using Cartegraph as the recording and tracking mechanism for Citizen Requests that funnel through the new Citizen Services administrator.

See Project 25 "Implement Citizen Request Management system in all relevant departments" for further details.

Citizen Services Committee

FINDING(S) – Based on enthusiastic participation and feedback from stakeholders in the Town Focus Group help by Centric, it is clear that stakeholders can best articulate stakeholder needs.

RECOMMENDATION(S) – Centric recommends that the Town of Dedham convene a 'Citizen Services Committee' whose work would be to meet and recommend to the Town any activities or tools deemed appropriate and necessary to meet stakeholder needs. This could be a monthly committee until a new website is deployed, and a bi-monthly or quarterly meeting thereafter. Participation should be limited to 10 members or less, and this committee would submit their recommendations directly to the Town Manager and/or Board of Selectmen.

eService & Transparency

3 Key Opportunities:
1. Select a new 3rd party payment processor 2. Implement ePayments at the counter in all Town facilities 3. Select and implement a Licensing, Permitting, and Code Enforcement application

Offering stakeholders the opportunity to self-service online is one of the most transformative movements in government today. Because of limited funds it has taken longer to percolate to small Cities and Towns, but it has become *the* best practice for municipalities to service their constituencies. Today's stakeholder is tech savvy, without a doubt. The U.S. Census Bureau has reported that in 2013 (most current annual findings) 83.8% of households reported computer ownership, with 78.5% having a desktop or laptop computer, and 63.6% having a handheld computer. High speed Internet access was estimated at 74.4%. eService are services provided whose delivery is initiated and enabled by information technology. For example, in public eService, public agencies are the service provider and citizens as well as businesses are the service receiver, and the channel of service delivery starts (and in many cases ends) with the Internet. Centric was clearly advised by Focus Groups and by our surveys that stakeholders *expect* eServices as part of a municipal infrastructure, not merely wish it. Our Focus group members expressed a desire to avoid having to come to a Town office to request or receive a service.
Transparency is another major government technology driver. Citizens expect political leadership and a Town administration that is open and above board. More to the point, there are federal and State of Massachusetts regulations (e.g. 950 CMR 32 "Public Records law", and M.G.L. c. 30A Secs 18-25 "Open Meeting law"), that mandate transparency and strongly recommend the use of technology to meet that mandate. This is as much a compliance issue as it is a stakeholder issue. The goal for many municipalities in Massachusetts and elsewhere, similar to Dedham or otherwise, is a technology enabling process whereby stakeholders can self-service their requests for public information such as public documents, and meeting agendas, minutes, and video recordings.

Resources:

- BEST PRACTICES FOR MUNICIPAL WEBSITES
- Case Study - Municipal Service Delivery – How to Get to Best Service At Lowest Cost
- 10 Ways to Improve Your Municipal Web Design RFP
- Top 10 Best Practices for Creating a Community Website

Town of Dedham Website

FINDING(S) – Stakeholders are offered few options for eServices offered on the website. Certainly the launch of the YourGov (Cartegraph) application is a major leap forward to the Town's credit. CodeRed and other informational subscription options are also positive, however it is actual transactions that the stakeholders are seeking. Whether it is to file an application, or pay a fee or fine.

RECOMMENDATION(S) – It has been noted elsewhere (in the Citizen Services section) the dire need for the Town of Dedham to migrate to a new website platform. It will be key during the preparation of an RFP (an example can be requested of Centric), that eServices be built directly into the CMS product, rather than as add-on components.

Licensing & Permitting, Code Enforcement & Inspections

FINDING(S) – A frequent request recognized by Centric is the expectation by stakeholders that initiation of a license, permit, or inspection be enabled directly from the website, rather than requiring a direct visit to Town Hall or other Public office. This is a service that is already provided by many of the benchmark communities Centric analyzed, and it is a great start toward better stakeholder engagement and satisfaction.

Since many of Dedham's stakeholders only interact with the Town in the context of transactions for permits, licenses, etc., it is critical to Dedham to ensure that these transactions are efficient, friendly, and timely. Difficulty in dealing with Dedham's bureaucracy will not enhance the reputation of Dedham with residents and businesses.

RECOMMENDATION(S) – Centric is recommending a stepwise implementation of eServices for licensing, permitting, code enforcement, and inspections:

- Initially IT should work with all departments providing these functions to create semi-automated PDF forms that may be downloaded by stakeholders and then submitted (via button on the form) to the appropriate department and staff members. These transactions need to have a mechanism to acknowledge the form receipt by the stakeholder, and be stored in an easily accessed and backed up folder location on the appropriate Town file share. Centric acknowledges that departments like Planning and Building have already started this process, but they will need IT assistance to properly automate the forms.
- IT should work with all departments utilizing any kind of permits, licenses, enforcement records, inspections, and other form based transactions to document the requirements of the Town in a fully automated system for the processing, recording, and collections (fees & fines) of these requests. There are many such applications designed especially for municipal organizations, that offer the added advantage of the routing of permits, etc. from one department to another as part of a planned workflow, so that timely processing is guaranteed. (Centric can provide an example of an RFP for this). ***See Project 24 "Implement License, Permitting, and Code Enforcement system" for futher details.***

Tax & Other Payments

FINDING(S) – In a world that is moving rapidly toward an entirely digital economy, payments by cash and check are becoming impediments to stakeholders' convenience and an added expense due to ATM fees to acquire cash. Businesses still use checks, but automated bank reconciliation is making the issuance of checks more problematic than EFT payments.

Unfortunately, the Town of Dedham still adheres to a policy of cash and checks only for transactions inside Town Hall or at other Public buildings. In effect the stakeholder is financially penalized for taking their transactions to the counters of a public building ostensibly dedicated to making services easier for them. Because of a lack of adequate cash controls (see report section Fiscal Responsibility, Cash Collections), many departments do not wish to accept even cash, so the stakeholder is forced to utilize checks as their only recourse.

The U.S. Federal Reserve (2013 Federal Reserve Payments Study) reported in 2013 that of non-cash payments in 2012 credit, debit, and EFT transactions accounted for approximately 85% of all payments. It is clearly time for the Town of Dedham to acknowledge the payment patterns of its stakeholders and offer solutions to meet their needs.

RECOMMENDATION(S) – Centric is recommending that the policy of cash & check only payments be phased out (i.e. the policy should accept cash, checks *and* debit/credit/ACH). All outstanding payments, fees, and fines should be payable by a credit/debit card on a Town branded website where these payments can be aggregated and processed. Instead, one or more of the following options can be utilized to better serve stakeholder needs (listed from least recommended to most recommended) :

- Older decommissioned PCs can be set up on the customer side of the counter with a card swipe and a receipt printer. These will effectively be 'kiosks' where a customer can find their outstanding payment on the web site, make payment with a credit/debit card via swipe, and print out a double receipt, one for town staff so that payment is proven and the rest of any transaction can be completed, and one for themselves.
- All Town offices that process payments should be equipped with one or more Point-of-Sale (POS) systems for each clerk handling payments (no sharing of cash drawers). Each POS system is in effect a desktop computer equipped with an automatic cash drawer, a pole display that shows the balance due, a credit/debit card swipe, and a receipt printer. When a customer arrives for a payment, the clerk would look up or create the web site payment due, set the website for payment processing, and ask the customer to swipe their credit/debit card. A copy of the printed receipt would go in the cash drawer, and a copy for the customer. Each POS system can create a proofing report at the end of a shift or day to show payments processed (cash, check, or electronic), and the clerk who was associated with that cash drawer for proper payment auditing. Some of the POS systems will produce a file that can be directly imported into the Financial System without the need for manual processing. ***See Project 29 "Implement Cash & Payment Management" for further details***.
- Customers can also use their own mobile devices, or desktop computers, to make a credit/debit payment via the Town payment web site. The key factor here is that *at no time* in this option or the above, that Town staff handle the customer's card. Swiping must be performed by the customer only. This prevents the Town from having to worry about compliance with Payment Card Industry (PCI) regulations that could add to compliance workload or impact the Town's ability to accept card or EFT payments.

Agenda & Minutes

FINDING(S) – Agendas and minutes are arguably the most frequently sought after information on a municipal website. They are the key components of a government Transparency initiative. Agendas and minutes are also one of the key factors in assessing municipal transparency by news media and the participants in the annual Sunshine Week testing (usually in mid-March).
While it is obvious that staff has been struggling to keep up with the posting of agendas and minutes, it has been unsuccessful. Many meetings have neither agendas nor minutes posted weeks afterward.

RECOMMENDATION(S) –

- It should clearly be the responsibility of the staff member affiliated with the posted meeting to insert an agenda into the meeting notice, and to expeditiously insert minutes, in PDF or scanned version, into the meeting notice after meeting adjournment. *This should not be a responsibility to add to the burden of the webmaster.*
- When selecting a new website CMS attention should be paid to the calendar module to ascertain that it encompassed ease of agenda and minute attachment, and if possible the ability for stakeholders to subscribe to the meeting to get an email notice of any change in the meeting content (date or time change, attachment of minutes or agenda, etc.).

Service Requests - DPW & Parks & Rec

RECOMMENDATION(S) –

As has been discussed elsewhere in this report, stakeholders need a reliable mechanism to submit requests for service. This is of course just another aspect of eService. As stated elsewhere the Town's new YourGov (Cartegraph) citizen service request system should be deployed in *every* department that routinely handles requests directly from the public (for example, Parks & Recreation, Facilities, Council on Aging, Health, Veteran's Affairs, etc.).

Video on Demand

FINDING(S) – In the last few years stakeholders have seen an explosion on the Internet of video on demand. It may be Youtube or other websites, or it may be from their use of the DVRs (digital video recorders) built into all the major broadband TV providers equipment. However municipal government in some places has lagged in offering the same level of viewer access. Transparancy of government is more than just agendas and meetings (regardless of their import), stakeholders expect, and have a right to expect that meeting of official bodies of the municipality are both televised, and provided in video streaming form as timely as possible. It is important to remember that the public is paying for this service! In all broadband provider's billings to the customer is a small percentage appropriated for PEG (Public Education, and Government) television. Once television went digital virtually all PEG services were able to provide recorded and streaming video content to the public.
Dedham TV is Dedham's PEG contractor. In spite of the fact that the vast majority of Dedham TV's funds come from the Town government of Dedham from franchise fees paid by Comcast, RCN, and Verizon, public television in Dedham is still providing services that were improved by most PEG providers five or more years ago.

RECOMMENDATION(S) –

- The broadcast equipment in Town Hall (council room upstairs, and meeting room downstairs) is obsolete for today's hi-def transmissions. Even though this equipment is licensed to Dedham TV through the town's contract with Dedham TV, the ownership of the equipment reverts to the Town whenever the contract with Dedham TV is over. Therefore it is the public's money funding this service, and Dedham's actual ownership of the equipment, so Dedham should require Dedham TV to update its systems.
- There are instances where Dedham staff would have liked to use the existing cameras and recording devices to cover training sessions and other legitimate meetings and events. So Dedham TV should provide Dedham IT with a set of written instructions on utilization of the equipment without Dedham TV staff involvement. This has already been cited as an issue in the section on Emergency Operations.
- Dedham TV should collaborate with the Town IT, and the various Town TV franchisees to add a "head-end" connection (direction connect to TV providers) to the new Town Hall facilities in 2017. This permits Town emergency operations staff, such as the Public Information Officer, to switch the government TV feed over to live video from the Emergency Operations Center. Currently the switch must be made at the Dedham TV offices, which may well not be staffed during the event of an EOC activation. Here as well, equipment should be updated and a set of instructions for EOC personnel on how to activate the live feed should be created.
- In the context of Municipal transparency, Dedham TV should in a diligent and timely manner post on their website and the Town website all recorded and live-streamed government broadcasts in a video-on-demand format. At present a stakeholder is limited to watching broadcasts live on TV, or live on video stream, but there are no options for viewing after the fact. If they miss the broadcast, they must record it themselves. Video-on-demand is a standard customer convenience for PEG stations, especially the municipal channels.
- ***See Project 20 "Update Dedham Community Television Equipment" for further details.***

3rd party processor

FINDING(S) – Currently the Town of Dedham contracts with InvoiceCloud for electronic payment options, which is this case is only tax payments. However InvoiceCloud cannot handle ad-hoc bills and payments. This is a major limitation to the Town. It means that if a customer wishes to pay for example a building permit, it is not possible for the Building department to immediately post that bill to InvoiceCloud so that the customer can immediately pay it via payment kiosk, POS system, or mobile device.

Ad-hoc on-demand bills for payment is a standard feature of many 3rd party payment processors. They provide a simple interface for the clerk to create the bill, an immediate bill for payment by the customer, and reference detail that can be used to reconcile the payment via the Town's lockbox account.

RECOMMENDATION(S) –

The Town should create an RFP or RFQ as soon as possible to locate government-friendly, convenience-fee based, 3rd party payment processors. There are many out there, and the Town can select the one that provides the least service fees to customer who makes the convenience fee payment. ***See Project 28 "Migrate to new 3rd Party Payment Processor" for further details***.

Productivity, Performance & Innovation

3 Key Opportunities:
1. Implement LOGOS Human Resources module 2. Implement LOGOS Payroll & Timekeeping module 3. Select and implement an Enterprise Content Management (ECM) system

It should be obvious, but most technology, including that at the Town of Dedham is designed to either improve productivity (reducing cost), increase performance (increase quality), or to innovate by automating some function or process (increase value). At Dedham there are so many opportunities to use technology to better serve its stakeholders, improve its operations, and reduce costs. We will explore some of them that Centric recommends below.

Resources:

- Implementing ERP Systems in the Public Sector: Nine sure ways to fail or succeed
- A Case Study in the Emergence of ERP Coherence through Cultural Change
- Performance Measures: Concepts, Principles, and Strategies
- Handbook: Municipal Performance Management Program

New World Financials

FINDING(S) – Dedham's New World Financial System LOGOS provides many opportunities to increase productivity and performance due to its automation of fiscal processes and procedures that used to require manual effort. The most critical aspect is more than just automation, it is in the value of the data in Dedham's financial systems. Reporting both periodic and ad-hoc will provide a better view into the financial status of the Town at any given time. Budget overruns, fiscal trends, etc. can be spotted in advance and become opportunities to improve the Town's financial performance and use of resources.

To date, Dedham has not availed itself of most of the automation functions of the LOGOS system, and they will have been recommended elsewhere in this report. However there are opportunities to improve labor intensive operations with modules *that Dedham already owns and is paying annual licensing fees for* (e.g. bank and cash reconciliation).

RECOMMENDATION(S) –

At the time of implementation of the LOGOS system, insufficient oversight and limitations of town resources led to a very generic implementation that leveraged few of the strong automation and reporting functions built into the system. Dedham should be wringing every bit of value out of this system. Therefore Centric recommends that the Town of Dedham and Schools should immediately contract with New World Systems to review the current configuration of LOGOS, recommend configuration changes and use of unused modules, and then to provide financial staff and other appropriate users in both the Town and Schools adequate training to leverage those benefits. ***See Project 11 "Reconfigure & Train on LOGOS ERP System" for further details***.

New World Human Resources & Applicant Tracking

FINDING(S) – Currently the Town of Dedham Human Resources department uses the Harper's Millenium web based product to handle Human Resource needs. This system however is *not* a fully featured HR package, but rather a database that will manually store and retrieve human resource information on employees. Its reporting capabilities are also limited compared to ERP systems like LOGOS.

RECOMMENDATION(S) –

LOGOS' Human Resource modules are quite powerful and more in line with the expectations of any HR professional. In addition to storing basic employee data, LOGOS can accommodate performance related data (e.g. training, certifications, etc.). One major benefit is that LOGOS offers e-tools for employees to directly view and update the appropriate parts of their HR records (like address, dependents, etc.), and to make Benefits selections and compare plans during open enrollment, which is a huge time savings for HR staff. LOGOS reporting tools will help HR to better view the town's HR obligations and to observe trends of concern or interest. LOGOS will also allow the workflow processes of creating, changing, and eliminating positions to be automated within the system.
The implementation of LOGOS Human Resources is however non-trivial. It requires that each individual job type have a position control record associated with it, and employees are then assigned positions that are linked to the main position record. This will take HR at both Schools and Town some time to develop, and of course will require the investment for assistance of New World System consultants to make the process more efficient and cost effective. With a small investment applicant tracking from an Applicant Tracking system (such as the TalentEd applicant tracking tools used by Schools), can be configured to populate positions with employee data once and employee selection has been made. ***See Project 12 "New World System LOGOS ERP system" for further details***.

Payroll & Timekeeping

FINDING(S) – Currently timekeeping, both work hours as well as accruals, are handled manually and entered into spreadsheets that ultimately are manually input into the current payroll application Harper's Millenium. Harper's is no doubt valuable and should be retained if the Town and Schools wish to have the actual paychecks and EFTs handled by an offsite 3rd party. Regardless, it is the lack of any real accountability and automation in timekeeping that creates risk of significant invalid payroll costs and accrual payouts. *Please see the Payroll & Timekeeping analysis in the Fiscal Responsibility section of this document.*

RECOMMENDATION(S) –

LOGOS' HR Payroll application offers e-tools that allow employees to submit their work times electronically for approval by managers, and ultimately submission to the LOGOS system ledgers. An automated process like this can lead to better timekeeping which means more accurate payroll and accruals, and means that staff can more productively manage their own time, and managers can manage staff schedules better. Finance and Department management can utilize reports to summarize scheduled time and accruals, and use that data to better manage employee performance, better estimate FTE requirements, and reduce unnecessary overtime. ***See Project 14 "New World System LOGOS Payroll Pilot" for further details***.

Increased Controls

FINDING(S) – There are few automated methods for management to get the data needed to provide the level of financial and staff controls recommended by auditors and the Department of Revenue. Because any current control is essentially a manual one, it is less a standard than a measure of individual diligence by a manager.

RECOMMENDATION(S) –

- Budgeting for new period payroll and benefits can be improved by using past data at an aggregate level to project future costs, especially in cases where increases in step and grade costs will have an impact on total personnel budget. Analytics will also allow HR and Town Administration to compare different benefit packages between historical and a new proposed package to select benefits that give Dedham the best bang for the buck.
- Department managers can use reporting to assess budget apropriations and spending to date and plan for adjustments to stay within budget (especially on 'open POs'). They will also have the ability to use LOGOS to review department or staff level detail on labor costs, and be able to review schedules before approving personal or vacation time.
- LOGOS is not the only application that can provide improved performance management at the Town. The Citizen Service Request system (Cartegraph) stores data on time of request submission, time of request response, and time of resolution. This data can be reported on through Cartegraph to develop a set of Service Level targets that managers can use to find improvements in performance, quality, and efficiency.

Permitting Info into Vision for Appraisals

FINDING(S) – Another area of opportunity for efficiency is in the Appraisers Department. Currently the Building Department collects permitting data in the Energov application, and then submits it electronically via spreadsheet to Appraising. The Appraisal Manager must then import the data manually into the Vision Appraisal system.

RECOMMENDATION(S) –

- Permitting data should be configured to produce a file in a format that Vision can import. This may require configuration changes in Energov to provide a referential parcel or account number.
- Permitting files could also be integrated with the GIS system for an easy graphical view by parcel mapping, and provided to stakeholders via the web site.

Training & Performance Management

FINDING(S) – Employees of the Town of Dedham report a general lack of training and a strong desire for more; and in a variety of media and modes to match differing learning styles.

RECOMMENDATION(S) –

- Certainly when the Town implements the new software applications we are proposing on the Strategic Plan, effective training to all end users should be incorporated.

- IT should offer long-requested end-user training in productivity tools (i.e. documents, spreadsheets, and presentation suites).
- However IT has a larger role to help determine training needs (via assessments) before training for any application is planned , and to assist other departments in the creation of a reasonable level and format for initial and follow up training.
- The IT department should explore free or low-cost screen and sound recording tools that can assist IT and other departments to create interactive training packages.
- After training, departments must plan for the use of reports from the software applications and assessment tests to help employees in performance management.

Enterprise Content Management Systems

FINDING(S) – The Association for Information and Image Management (AIIM) association has defined ECM systems as *"the strategies, methods and tools used to capture, manage, store, preserve, and deliver content and other documents related to organizational processes. ECM covers the management of information within the entire scope of an enterprise whether that information is in the form of a paper document, and electronic file, a database prints stream, or even an email".* For most laymen ECM is referred to as Records and/or Document Management (although the concept obviously has wider application).

The proper maintenance of government records, and their availability to stakeholders, is a key requirement of government transparency, and subject to a number of Massachusetts laws and regulations: The Town of Dedham is working diligently, especially in FY15 as they prepare for the move of Town Hall, to digitize records so that they do not need to be stored in paper format in the new location. That said, under a strict interpretation of Federal and State law and regulatory environment, the Town of Dedham is currently out of compliance with Massachusetts records transparency laws, and relevant records retention standards including:

* 950 CMR 32
* M.G.L. c.4 sec 7(26)
* M.G.L. c.30A sec 18-25
* M.G.L. c.30 sec 42
* M.G.L. c.66 sec 1, 8, 9
* Records in Common Schedule (01.070-01.081)

Without resorting to a technological tool, this situation can only become more aggravated and intractable.

The Dedham Town Clerk does a diligent job of attempting to meet law and regulation, but arguably the law and regulations are abstract and don't easily lend themselves to automation. However it was pointed out in the 2004 JFK Systems 'IT Infrastructure Study' that "There is no data storage model in place according to Town documentation. Users can apparently store information wherever they wish, with no IT-defined structure, security or backup policy". In response to this the IT department responded that a 'Document WAN' was 'in progress', however Centric found no evidence of a coherent document storage process or procedures in place.

It was therefore surprising to Centric to discover that the desire to implement a new ECM system was the *most oft repeated* request for future automation tools that Centric received from every department in its discovery phase.

The digitizing of records under the FY15 Capital Budget is a very good initial step, and will be quite valuable when seeding a new ECM system.
There is also a significant benefit to Dedham to look toward systems already tried and approved by other Massachusetts municipalities, of which there are several.

RECOMMENDATION(S) –

- A topology of data characterizations should be created by the Town Clerk's office in collaboration with the IT Department. This means to define how documents and other content will be named, grouped, categorized, and stored. For example, questions such as whether emails should be categorized by email only, or also by date of receipt/or sent, or also by the topic of the communication. These questions must be defined in the beginning of the process. In the IT industry we call the creation of that data topology "data governance' and it means that both the system, and the end users will understand what needs to be stored and how it should be submitted to the ECM for storage. That topology will include both obvious elements (file name, date of creation, size, etc.) and *meta* values that build keys upon which the content can be filed and searched under later by both staff and stakeholders. For example a meta value might be "email" and "Budget" and "FY2015"or some such multi-key model.
- A file naming convention should be determined that models as much as the topology as possible. This will allow content already in storage, and content digitized in 2015 prior to the Town Hall move, will be able to easily be imported into the ECM system.
- An RFP should be created to select a municipal-government purpose-built system that can be incremented in stages. The system should allow both the use of local and cloud storage methodologies. (Centrix will provide sample functional RFPs and vendor names upon request – such as Accela www.accela.com which has already incorporated many templates based on Massachusetts regulations.)
- In part because the great interest of this tool to the Town staff, a cross-functional selection committee should be formed to help assess the product against the functional specification that would be included in the RFP.
- An extensive training program should be designed in collaboration with IT to ensure that all Town employees are utilizing the system for applicable records going forward. Compliance with a new ECM will have to be mandatory for all staff.

IT Infrastructure Governance, Planning, Collaboration & Shared Services

3 Key Opportunities:
1. Outsource IT until the department can be reorganized
2. Implement ITIL Lite governance practices
3. Begin addressing the need for infrastructure redundancy

It was clear to all the ITC committee members (that created the RFP and contract Centric is working under), that IT in the Town and Schools could use some unbiased observers with knowledge of the Municipal and Pre-K-12 technology environments. It was apparent that lack of personnel and material resources had kept the two Departments from keeping up with all necessary IT standards and best practices although the DPS Technology Team's overall performance, especially as it relates to supporting instructional technology integration has been very positive.

With that in mind, the Centric staff undertook an assessment of technology in its many forms and locations within the Departments, and in the IT Department itself. ***The following assessment and recommendations are related to the Town of Dedham IT Department only***, and do not apply to the School District IT group which is addressed in the Dedham Public Schools section of this report..

It is easy for non-IT staff and stakeholders to fail to recognize that Information Technology has been an independent profession for over half a century with many standards and many associations and accreditations affiliated. While we all recognize that technology changes frequently, and there are ongoing technical changes and challenges for any staff to manage, it is important to understand that *any* IT team must be appropriately situated within the organization, staffed sufficiently, and managed by a standard of practice that helps ensure that technology serves the strategic and tactical needs of the organization. IT must be a *service center* for the organization that focuses on meeting and exceeding its customer's needs. In the IT world we call this "IT Governance", and recognize that technology is of itself just a tool, and that IT is all about services and information. Quality services and reliable and useful information are what IT Governance seeks to ensure.

Centric's discovery process included:

- Interviews with all Department heads and key department staff where identified
- The development of a Benchmark Matrix (See **Appendix T4**) to see where Dedham stood compared with other relevant Massachusetts municipalities
- The application of municipal government best practices as espoused by the MMA (Massachusetts Municipal Association), ICMA (International City/County Management Association), and SIM (Society for Information Management)
- Interviews with Departments in other Massachusetts towns that were referenced as best practice sites
- Focus Group interview with external stakeholders of Town technology (See "Notes & Observations" **Appendix T3**)
- Security assessment based on regulation 201 CMR 17 (See **Appendix T6**)
- Web-based surveys with external stakeholders of Town technology (See **Appendix T3**)
- 'Shadowing' the IT staff during an average workday
- Analyzing key IT infrastructure metrics including Help Desk productivity

- Diagramming the Town's diverse network nodes and layers (See **Appendix T7**)
- Analyzing the Town 2015 budget and IT Department budgets from FY 2013-2015
- Interviews with IT Manager Veronica Barnes and independent systems consultant Chris Pohl (part-time 16 hrs per week)

Resources:

- The 7 Habits of Highly Effective IT Governance
- How to Implement a Lite Version of ITIL v3
- ITIL Lite - A Practical Approach
- Municipal Shared Services and Consolidation in Practice

IT Department Staffing - Inadequate

FINDING(S) - Despite having the second highest tax rate in our benchmark sample, Dedham was the lowest in terms of IT staffing (Dedham has 1.35 FTE). The most technical resource on the team worked only Tuesdays and Thursdays. An IT Infrastructure Study performed in July 2004 by JFK Systems identified the need to address staffing levels, and the Town response was this was 'in progress', but Centric has no indication why the recommendation was not completed. Other issues include:

- None of the existing staff members has any formal certifications in the technologies they are responsible for managing. It is not clear if one or both have any formal undergraduate or post-graduate training in IT/MIS/CompSci. As indicated in the job descriptions found in the Appendices, academic degrees, and appropriate technical certifications (such as A+ and/or Network+ for help desk, or MCSE or CCNA for systems administrator, or CCBA for an Applications Implementation specialist).
- The IT team has been moved to the High School recently and thus were less available and proximal to their customer base.
- Departments reported to Centric IT response times of days or weeks. Centric requested the IT Manager collect help desk statistics from Spiceworks (help desk application) for two weeks. The analysis showed that over 17 work days only 19 tickets had been submitted/created. Average tickets submitted per day was 1.12. Average length in days that tickets have remained open was 10.32 days. Average closure rate per day was .29. These numbers indicate that (a) staff were not using the help desk application or the IT staff were not logging calls, (b) that despite protestations of overwork, the department has the lowest closure rate that this Centric analyst has ever verified. This appears to validate the claims of slow or no response made by the IT Department's customers.
- Due to lack of timely response, most departments called upon other resources, in this case two managers Bill Ralph and Robert Stanley, to handle desktop & server support, impacting the official work of those staff.

RECOMMENDATION(S) – Centric is proposing that Dedham do the following:

- Staff an IT Department at the size appropriate to the complexity of the infrastructure, number of supported users, and to support the thirty-five technology projects (See Project Timeline Chart that follows in later section) that Centric has recommended to move Dedham to the 'best practices' that were requirements of the Town's RFP.
- *Reclaim the IT offices in Town Hall.* It was a mistake to move IT staff to the School building. If obsolete equipment and packaging materials are removed from the computer rooms downstairs in Town Hall, it would provide a more optimal workspace. Certainly Town Hall staff would be glad to have IT within the building. ***See Project 6 "Reclaim IT Offices in Town Hall" for further details.***
- *Staff a FULL-TIME IT Director who reports to the Town Manager* (job description has been provided to Dedham). Currently Dedham does not have an IT Director, but this is a pivotal role and this individual will be responsible and accountable for all services, infrastructure planning and management, and project planning and management. Centric recognizes that the role of a Finance Director is typically responsible for coordinating, supervising, and directing the financial activities of the Town. Therefore there is no value-add to placing a layer of reporting (the Finance Director) between IT and the Town Manager. From a budgeting and risk perspective, technology is a critical function needed to provide *any* service in the Town – it cannot be looked upon as a sub-function. It is clear that information and decision making in IT therefore should involve the Town Manager directly, just as Facilities, DPW, Parks & Rec, Planning, etc. report directly to the Town Manager.
- Reorganize the IT Department structure to include the IT Director, a new Systems Administrator (job description provided to Town), a new Applications Implementation Specialist (job description provided to Town), and a new Tier 1 Help Desk specialist (job description provided to Town). This would mean the addition of 3 long-overdue new FTE to the IT Department staffing. These new staff can greatly improve help desk support, infrastructure management, and large business projects such as New World, Document Management, and Licensing, Permitting, and Enforcement systems. As well as ensure the migration of Town Hall and the Police Department are handled without delay to their communications and networking needs.
- Select Spiceworks or another ITIL Lite friendly service desk application to manage help desk requests. If Spiceworks, which is free, is not sufficient, there are numerous cheap alternatives that will provide end users with the ability to call in a problem, email it, or submit it via the website. See ***Project 7 "Create True Help Desk" for further details***.
- During Reorganization, move Lisa Bazinet as web master into the IT Department (part-time 16 – 20 hrs weekly). This is a minimal amount to allow Ms. Bazinet to adequately address the demands of both a migrated website CMS, and maintenance of the new website. *It should also be noted that Ms. Bazinet has experience in being a System Administrator for a LMS (Learning Management System) in prior employment and could make a significant positive contribution to the planning and implementation of an ECMS (Enterprise Content Management System).*
- The Town's investment in GIS technology is a credit to it, and this technology should be leveraged at all opportunities to pull together disparate data into geographic elements that help stakeholders assess the Town and the Town's efforts. It is forseeable that some day stakeholders may want to view their tax and sewer fees, as well as building permits, licenses, and fees, by parcel directly from the Internet. It is a fact that GIS is one of the

most utilized tools on most municipal websites, and a favorite of developers and real estate professionals. Therefore Centric recommends the move of Leon Scott GIS Manager into the IT Department from his current reporting relationship to DPW. These changes require no physical moves, and no additional FTE hours. Nor will they impact services provided to other departments. However they provide improved communication between GIS staff and the IT Department with whom they should be collaborating, and it allows the IT Department to better leverage technical skills that these individuals can apply to other projects and support issues. Lastly, the inclusion of web master and GIS into IT is an accepted standard of practice elsewhere. (See recommended Full Complement organization chart in **Appendix T9**).

- *Utilize an outsourced IT services provider to staff and manage existing infrastructure* until such time as the new full-time staff recommended above are hired and trained. Centric is recommending that the Town contract for the services of a Tier 1 Help Desk specialist for 4-5 days a week, and the services of a Systems Engineer for 3 days per week. These outsourced service packages would also include remote monitoring of the infrastructure and additional remote technology support. Thus they will provide a necessary bridge between current state and future state when the Department has been fully staffed and reorganized. . (See recommended outsourced organization chart in **Appendix T9**).
- Form an IT Advisory Committee drawn from non-IT staff and chaired by the IT Director, who can provide necessary feedback to IT and can assess and prioritize operational and capital projects to ensure alignment with the Town's strategic goals.

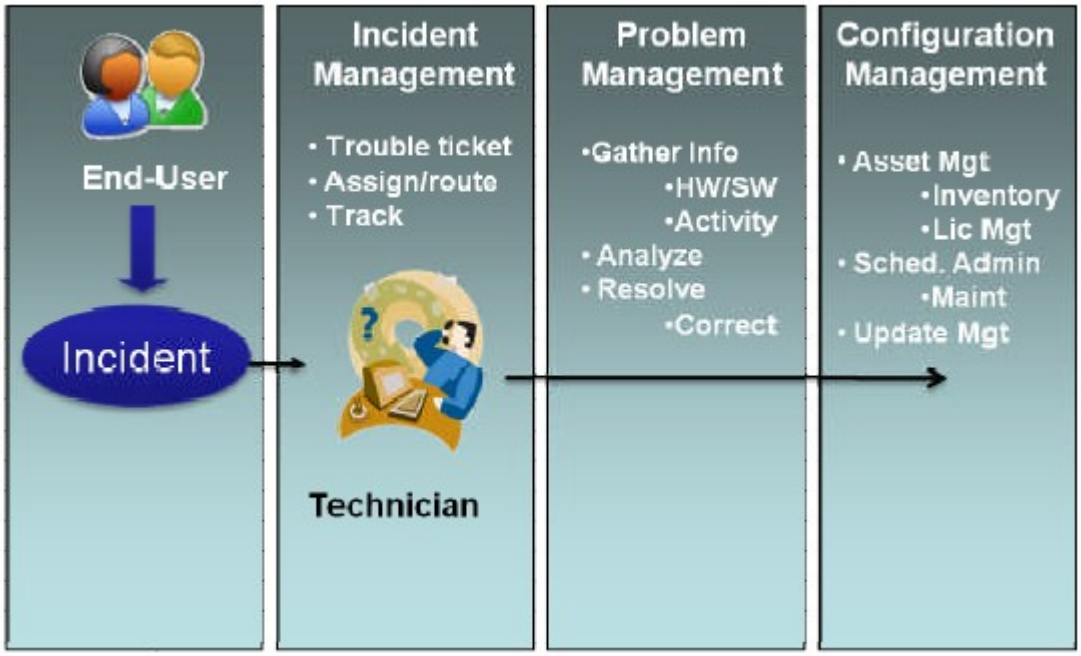
IT Department Not Managed to Standards

FINDING(S) - Management of a multi-million dollar organization's technology requires standard documented practices and procedures. A lack of these documents was noted on the July 2004 IT Infrastructure Study by JFK Systems, and the Town's written response was that updating diagrams, policies, procedures, etc. was 'In Progress'. However the IT Manager shared with us in November that there were no diagrams (network & infrastructure), no policies, and no procedural documents such as Disaster Recovery or Business Continuity. We also noted the lack of any current user guides for support. Centric did find an older Acceptable Use policy, but it had not been updated, and it is not clear if this policy was enforced with staff. A social media policy was created and approved by the Board of Selectmen during this engagement. Barring those exceptions, there was little structure in the management of the IT Infrastructure.

Of greater concern is the fact that the IT Department staff felt that outside software vendors were responsible for managing some servers and for critical database maintenance.

RECOMMENDATION(S) – Centric is proposing that Dedham adopt an internationally accepted standard of practice called **ITIL** (Information Technology Infrastructure Library).). ITIL is a set of guidelines for delivery of IT Services. These guidelines provide a holistic framework that allows IT support to become more proactive while at the same time more productive. ITIL is the gold standard in the business world, and was developed in England in the 1980s for organizations managing thousands of PCs. However the full version is expensive and difficult to implement and so over the last few years ITIL has been streamlined for adoption by smaller government agencies and SMB (small to medium businesses). This has been called ***ITIL – Lite***. We are recommending that the Town of Dedham's reorganized IT Department adopt an ITIL Lite approach to infrastructure management and services.

ITIL Lite recognizes four types of management that flow into each other and provide a balanced set of



IT services. First an **Incident** is reported to the service desk (help desk), and a trouble ticket and technician is assigned to handle it. If it is more than a simple solution than it is a **Problem** and the service desk moves it from *incident management* to *problem management* (basically just an escalation in the trouble ticket to a new set of techs). In problem management the purpose is not only to resolve the issue, but to determine *root cause* so you can *proactively prevent the problem in the future*. Once you have proactively determined a course of correction, you will want to make a **Change** in the infrastructure. The Change is part of *configuration management*, whereby you assess risk, impacted assets and staff, license or financial implications, etc. and you schedule and announce the change to your service community. Two additional elements are a *knowledgebase* (which should be built into the service desk software) and a configuration management database (CMDB). The CMDB can be within the service desk application, or an excel spreadsheet, it is merely a listing of the infrastructure assets you are managing, and what changes have been made (patches, upgrades, replacements, etc.). The included diagrams from Crow Canyon can help illustrate the simplicity of ITIL Lite.

One key part of incident and problem management in ITIL Lite is that of service levels. Each type of problem, and its escalation process must be codified in a service level agreement. Service levels should be created as well for specific departments that need faster response (such as Public Safety). The end goal for developing SLAs is getting them communicated to your users so they can have reasonable expectations on time to response for their issues. An SLA is called an *agreement* because it is like a guarantee or warranty of service between IT and its customers. Currently there are no service levels of any kind at the Town of Dedham.

In addition, just as all service requests must be documented, all procedures and practices in the IT Department must be documented. For example, the server and storage backup process must be step by step documented, and the restoration of those backups documented. Of course the document and procedure must be tested as well. To date the current IT staff have conducted no tests of their systems.

All acceptable use (AU) policies should be revisited and reissued, along with a dissemination of the new Social Media policy. Policies on technology purchases requiring approval of the IT Director should also be promulgated. A Help Desk user manual, with service levels defined should be given to all users. Similarly, documentation of frequent support procedures should be created so that users can help support themselves. Ultimately procedures on disaster recovery and business continuity must be created – a non-trivial task for the IT Director. ***See Project 16 "Implement IT Governance" for further details. See Project 17 "Business Continuity Planning" for further details.***

IT Department Budget – Not Sufficiently Detailed

FINDING(S) – Although constrained of course by the Chart of Accounts, the IT Budget should not obscure its planned purchases and services under global account numbers. The current 2015 IT Budget lists $413,107 under the account number 5316 Technology Support. Although Centric asked for a more detailed breakdown, the IT Department did not provide further details.

RECOMMENDATION(S) – Centric believes that the chart of accounts should be atomic enough that the Town Manager, and the FINCOM, can examine that $413,107 and identify all subordinate expenditures by account. Without that oversight, technology spending can be pursuing goals that the organization would not want implemented.

Collaboration Between Town and School IT Is Insufficient

FINDING(S) – There is effectively no structured collaboration between the Town IT Department and the School Technology Team. This is *not* a policy, just a byproduct of the separation between the two teams. Regardless, there are significant overlaps in the technologies used by both teams, where collaboration would be more efficient and effective than going it alone or outsourcing some problems.

Centric was asked to consider the question of whether both Town and School IT departments should be combined into one. We invested significant time in meeting with other municipalities where such efforts have been tried. What became clear is that there is no way to remove Instructional Technology from the Schools, and even 'combined' models actually had a separate mini-department at the Schools to manage the technology there and to support the teachers. What could clearly be shared are those services that are more commodity components, for example VMWare, networking and switches, security, etc.

RECOMMENDATION(S) – Centric recommends that the Town Manager, the Town IT Director, the School Superintendent, and the School Technology Director meet and draft a voluntary MOU (memorandum of understanding) that would allow Town and Schools to request without unwarranted delay or difficulty assistance from the other department's staff on those commodity components of their infrastructure (networking, servers). If the Schools or the Town has a better way of managing or troubleshooting something, then the other partner should benefit as well, and vice versa. It will also allow some level of resource sharing during periods of high usage or projects; that can help the Town and the Schools avoid contracting costs for additional assistance during those peak periods.

- Centric also recommends that Town and School Department IT work toward building an infrastructure utilizing the same model and version of components, so that collaboration and knowledge sharing become easier.
- Whenever possible, the Town and Schools should combine efforts on technology procurements to get the best price for both parties. Centric recognizes that many times the Schools get educational pricing that is prohibited from being offered to the Town, but there are exceptions where combining purchases will yield some savings.

Town Infrastructure Is Undermanaged

FINDING(S) – After significant challenges in getting basic system metrics on the Town Infrastructure, Centric could assess that the infrastructure in place was satisfactorily provisioned, but that critical IT management activities were not being performed. While Spiceworks (a centralized infrastructure management application) was installed, it did not appear to be configured to provide alerts on any problems or trends. One reason that led to the delay in IT to provide Centric with two weeks of system metrics.

- Town IT staff had erroneously concluded that much of the server environment was the responsibility of the software vendor in perpetuity, who was running on that server. This is of course is only the case in locally hosted managed service agreements - which these were not.
- Town IT staff had also never directly managed, or tried to verify, the maintenance plans of the SQL database servers on which the Town's critical applications are platformed. Similarly, anti-virus protection is provided on systems outside the firewall, but the servers are not protected at all. Thus a threat that compromised a local system could proliferate throughout the infrastructure.
- It was also confirmed that not all servers and storage or network devices are updated with current patches and upgrades in a timely manner.
- The infrastructure was confirmed to be adequately licensed, so that the Town had incurred no unexpected licensing costs; verified by the Microsoft software inventory analyzer. It was a concern however that Town IT staff required the assistance of the Schools network manager to

get the licensing application running. While this was a positive collaboration, it highlights the fact that that license management in the past could not have been utilizing the tools necessary and provided.

- Town IT staff have placed both the Town's domain controller (master network controller) and the VMWare Vcenter (VMWare's own master controller) onto virtual machines in the VMWare cluster. This is an extremely risk laden configuration. It means that should the VMWare system have a major hardware or software failure, the Town's network would cease to function, and the system you would use to troubleshoot and resolve the problems, Vcenter, might also be unavailable. The end result would be a cessation of all IT services, and the probable need to call in outsourced technical staff to resolve the issues. Root cause analysis (part of ITIL Lite's problem management) would not likely be possible in that case as well.

RECOMMENDATION(S) –

- During the period of outsourced IT staffing, a network and server management service will apply and cover the Town.
- Once permanent staff are acquired, the systems engineer should install a network and server management application (such as Spiceworks), and produce monthly reports on at least disk, memory, processor, and network utilization and trending. Further, VMWare's Vcenter reporting should be used to generate the same metrics on virtual machines. In theory, it should be possible to generate metrics on all networking components, server systems, and storage devices. These reports should be reviewed by the IT Director. This will be critical to preventing future failures, and allow the IT Director to adequately plan for increases in resources when trends indicate.
- Once permanent staff are acquired the systems engineer should weekly review all outstanding patches or updates available for the systems, review the release notes to determine if applying the patch or update is appropriate, and schedule the application of those patches or updates after notifying Town staff of downtime and possible repercussions (this is the Change Management part of ITIL Lite). After patches or updates are applied, the change management database should be updated to note the current version or build level resident on those systems and the date updated.
- *The Town's domain controller, and VMWare Vcenter system, should be migrated as soon as feasible to newly purchased physical servers.* ***See Project 8 "Migrate virtual servers to physical servers" for further details.***

Town Infrastructure Is Overbuilt

FINDING(S) – While it is good management to build an infrastructure today that meets tomorrow's needs (such as in networking where demand is always increasing), there should not be unused resources deployed that incur a licensing or maintenance fee. In the case of the Town's IT infrastructure, the IT staff have deployed a new virtual server, and in some cases a new SQL server, for every server based application they have provisioned. It is not necessary for every virtual server to run only a single application, as long as the key metrics are being managed to ensure performance and availability. However, here again a history of failure to manage systems is apparent. Through the metrics eventually provided by IT, as well as licensing information, Centric was able to determine that a

significant number of virtual servers were unused but still deployed. This can contribute to unnecessary processor utilization on VMWare, and more importantly, can incur a licensing fee for each of those servers and the client computers that utilize it. Thus this should result in some IT budget savings.

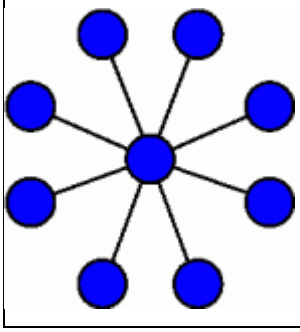
RECOMMENDATION(S) –

- Use Microsoft licensing information, as well as VMWare virtual server processor and disk metrics, to measure the utilization load on each of the approximately 72 virtual servers that the Town is operating. Determine which servers are underutilized and which are no longer necessary (as their applications are no longer used).
- Aggregate small applications to common virtual machines (which have been determined to have sufficient resources to support them).
  Decommission all unnecessary virtual servers after a full backup of their systems (should it be necessary to restore in the future). ***See Project 9 "Consolidate virtual servers" for further details.***

Infrastructure Risk and Redundancy

FINDING(S) – It is a key responsibility of the IT Director to consistently assess levels of risk in the infrastructure and to create plans to efficiently and effectively mitigate that risk. Any substantial IT infrastructure has variable layers of interdependencies between resources and services. However the IT Director and staff should be cognizant of any *single point of failure* and have a plan to mitigate that risk.

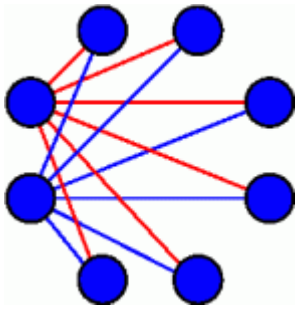
- The Town of Dedham has a single core network switch (the core switch is part of the backbone of the network, providing the final aggregation point for network traffic and routing it appropriately – it's a component that *all* network traffic must traverse. While this core switch has a redundant power supply, should the switch itself fail, all network traffic to the Town and Schools would cease.
- There are other critical risks to the infrastructure
  - The generator at Town Hall fails to run during a power outage
  - The transfer switch that routes power from the generator to the computer room in Town Hall fails to operate
  - The UPS (uninterruptible power supply) and its batteries fail to deliver power to the computer room in Town Hall and all devices go down until power is restored
  - The Town of Dedham's network configuration is called a Star Network or sometimes a hub-and-spoke network. The key characteristic is that all network spokes run to one central hub (Town Hall), so any failure in Town Hall, or any break in the fiber, will render one or more of the spokes unreachable. (See Dedham network diagrams in **APPENDIX T7**). For instance, a crash into the telephone pole next to the generator at Town Hall could take down *all* of the fiber spokes at once.



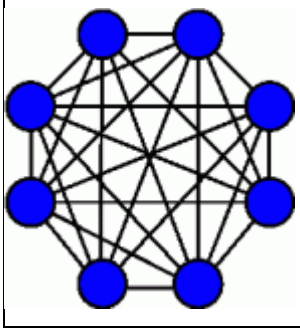
A failure in VMWare causes all servers to crash. Attempts to restore them from the Town storage array fail. Result is loss of some or all of those servers and their data.

RECOMMENDATION(S) –

- The IT Director and his staff should perform a risk assessment as soon as feasible, and create a risk register that can be used to categorize and prioritize the risks so a mitigation plan can be made.
- Centric offers the following recommendations based on the risks outlined in the findings.
  - A full end-to-end test of the Town Hall generator, transfer switch, and UPS should be made. ***See Project 3 "Generator Controls in Town Hall" for further details.*** This must be scheduled for a non-working weekend day, and adequate notice given to all users at the Town and in the Schools. Facilities is asked to shut down the power main breakers in Town Hall (simulating a brownout or surge). Facilities ensures that the transfer switch is tripped, and the generator starts. IT remains in the computer room to ensure that all server and network equipment switches to battery at the moment of power failure, and then reverts to normal power from the generator thereafter.



  - Redundant core switch modules can be installed in Town Hall, and moved when Town Hall takes up its new location. The current core switch is an HPe8212zl ProCurve switch from HP. A set of redundant management and fabric modules can be installed to provide redundancy in the core***. See Project 15 "Create Core Network Redundancy" for further details.*** Once that is done, the network will resemble a dual hub and spoke network, and failures in the primary core switch will be recovered by the redundant components.
  - Our next recommendation is one that would usually be a part of an IT department's Disaster Recovery plan. A full backup should be performed on one of the non-critical virtual servers and on one of the physical servers. After the backup cycle is complete and the backups go to tape, a failure in those servers should be simulated, and the tapes should be reloaded and a restore attempted. During that, hopefully successful, process the IT Director should take notes of the procedure so that they can be easily incorporated into the Disaster Recovery plan.
  - An enterprise server class security package should be installed on every active server behind the firewall.



Over time a more ambitious approach to network redundancy should be pursued. Even a redundant hub-and-spoke network can't provide robust reliability in disasters like an ice storm or hurricane when tree limbs fall and break fiber interconnections between the hubs and the spokes. To provide the greatest level of network survivability the Town should, over time and within budget constraints, begin placing fiber connections between each of the spokes. The net result would be a partial self-healing mesh network. ***See Project 22 "Create fiber legs between spokes of the Dedham fiber network to turn hub-spoke topology into ring" for further details.***

IT Applications & Technology

3 Key Opportunities:
1. Strategic alignment between IT efforts and Town goals 2. Save funds by purchasing PCs instead of Apples 3. Utilize free office productivity suites like Google Docs or OpenOffice

This section deals more closely with the Town of Dedham's IT services, reputation, and impact. It is fair to say that supporting an organization of this size with 1.35 FTE would always be daunting, but we also need to assess whether the IT team used their services and resources effectively to better the organization. Resources refers to staff time, budget, and proactive positive change.
The best managed IT infrastructure can still be a failure in the eyes of stakeholders if it brings little value to their interactions with the systems and the Town.

Resources:

- Introducing the Idea of an Open-Source Suite for Municipal Governments
- MMA - Massachusetts Municipal Association
- Using Free, Open-Source Software in Local Governments

Strategic Alignment

FINDING(S) – No IT department can be sure they are creating value unless they understand the strategic goals of the organization and have incorporated those goals into the IT department's own strategic plans. While the Town's Master Plan does not provide the level of strategic goals that IT should acknowledge, they should interview the Administration and staff to discover those goals. Unfortunately, the current IT team lost touch along the way and were not aware of the goals of the Town Administration and Departments. Centric was told during staff interviews that this was the first time they had been asked about their specific mission and needs.
Perhaps because of the limitations of such a small staff, the IT team had not developed any strategic plans, and for this reason they embraced the effort to create an RFP and select a firm to outline strategic goals.

RECOMMENDATION(S) –

- The IT department should collate the strategic goals found in this assessment, and other goals known to them and create a technology plan that is detailed and specific about what actions it plans to take to help the organization reach its goals between FY2015 and FY2019.
- The IT department staff, and most especially the IT Director, should make it a point to reach out to Town Administration and Department Heads once a month or once a quarter to discuss IT's performance against those goals.
- The IT department staff should configure its Help Desk software to submit a simple quality of service survey to anyone who had submitted a ticket upon resolution. The IT Director should collect these responses and use them in guiding the team in future tasks and support services.

- The move in 2017 of Town Hall to new premises, and the move of the PD from current station to the old Town Hall, provides a key opportunity for IT to ensure that proactive planning is in place and that the moves incorporate as many IT improvements as can be made within those constraints. For example, having power and network drops available for kiosks or point-of-sale systems in the new Town Hall. Another example would be the creation of a new wireless network to serve the new location and the growing trend of BYOD (bring your own device) usage that will need more bandwidth.
- The IT Director should present annual goals to the Town Manager, and these goals should be reassessed when the IT Department presents their budget.

Enabling Users

FINDING(S) – After previous attempts to make changes in the infrastructure (such as deploying the Zimbra email client) were met with strong resistance from senior managers, the current IT team became timorous about recommending alternatives to the existing standards. However it appears to Centric that good change management activities (communication, sponsorship, training) would allow end users to embrace new technologies that could assist their core operational activities.

RECOMMENDATION(S) – The IT department should immediately address the following concerns that were consistently expressed by Centric's interviewees.

- End users want the ability to run or load small applications without requiring lengthy waits for assistance from IT
- Key technical end users want local administrator access to manage the local desktop computers they are responsible for (e.g. the new Technical Librarian)
- End users want access to user guides, just in time training, and online and classroom training in productivity tools (such as MS Office)
- End users want information regarding when their desktops will be replaced on a refresh schedule
- End users wish to be notified of changes to their IT services (patches & updates) so they can monitor any problems
- End users wish to be included in decision making regarding what technologies will be deployed and what IT tools will be made IT standards for Dedham

IT Reputation

FINDING(S) – Even though IT staff have explained their challenges in managing the technology needs of the town with such a small staff, this explanation matters little to end users. Centric's interviews demonstrated that none of the departments felt that IT was meeting their needs. It was also suggested that the IT staff did not have the technical capabilities to improve their performance. Most upsetting however was the fact that department staff felt that IT was inflexible and unsympathetic to their needs.

RECOMMENDATION(S) -

The following actions should help IT slowly build up its reputation for timeliness and quality of service.

- All requests for assistance must be logged into the Help Desk system, even if they are of the 'just passing by' category and not submitted via email or phone

- Every request for assistance should receive a trouble ticket number. Users should be instructed that without receiving a trouble ticket number they cannot assume their request was acknowledged.
- The Help Desk must establish Service Level Agreements with its end users and manage to those service levels. They are not guarantees of resolution time, however they *are* guarantees of response time.
- A user guide to the Help Desk should be created (Centric can help identify one) and distributed to all users so that all requests get properly submitted
- IT staff must acknowledge the criticality of the request being made, and be honest with the end user regarding priority and SLA response time
- IT staff should always explicitly ask the end user "Have I resolved your issue?" and "Is there anything else that I can assist you with?"
- IT staff should always escalate to the IT Director any request that will *not* be met. Only the Director should ever be the one to say "No" to an end user
- IT department should implement ITIL Lite to provide a complete end-to-end resolution and change management process.

IT Tools

FINDING(S) – As a byproduct of IT's reputation for failing to respond to requests or refusing to assist with department needs, there has slowly been a balkanization of IT technology among the departments. Departments have used their own operating funds, without consulting IT staff, and purchased software applications for their specific needs. One result is that IT staff are unaware of the tool and cannot help support it. Another result is that these applications form part of a 'shadow' IT infrastructure and other departments are unaware that an application that could assist them had already been purchased and deployed.

RECOMMENDATION(S) – IT needs to take back ownership of the technology needs and infrastructure for the Town. Which means being responsive to department's requests for general or specialized technology tools to address their needs.

- Any purchase of a technology related product or service should require the approval of the IT Director, which will not be unreasonably withheld.
- An IT Advisory Committee should be formed, chaired by the IT Director, which will provide a forum for departments to submit technology requests, especially those over $1000. The IT Advisory Committee, along with the IT Director, will prioritize these requests and assist the department in capital budget requests when appropriate.
- The IT department should create a full and comprehensive software and hardware inventory and share this with other departments so that departments are aware of the tools already available to them.
- The IT department should be open minded and flexible when receiving requests for new technology or changes to existing technology standards. While IT standards are critical, IT should never enforce standards for the sake of it. If a standard no longer serves a reasonable purpose, it should be changed.

Innovative IT Tools

FINDING(S) – Dedham IT has provided laptops to several department heads, but there is little other application of innovative tools. Technology, especially wireless, has been changing the world of Dedham's staff and stakeholders, and should be embraced by Dedham IT.

The most notable absence is that of mobile devices, such as tablet PCs. There are many departments whose work takes them outside of the office, and tablets could be used to permit them to complete reports and forms, and move on to the next task, without the necessity of having to return to the office. That said, it is incumbent upon the IT staff to ensure adequate security is applied to mobile devices.

RECOMMENDATION(S) – IT needs to take back ownership of the technology needs and infrastructure for the Town. Which means being responsive to department's requests for specialized technology tools to address their needs.

- The Dedham webmaster should be using an Android tablet, an iPad, and a mobile phone to test the response and look and feel of the website on the various mobile devices that one would expect Dedham's stakeholders to be using.
- Departments using Cartegraph should issue tablets to employees so that they can receive work orders, complete them, photograph the result, and accept another work order, all without having to return to the office.
- Departments performing inspections should be issued tablets to complete the inspection forms online in the field. There are also cheap mobile printers that would allow the inspectors to issue certificates in the field.
- The Library should be issued several Chromebooks for patron use when inside the Library itself. This is a growing expectation in Libraries, especially Children's sections. ***See Project 10 "Library" for further details.***
- Once a new combined Police & Fire CAD system is selected, tablets are the most logical replacement for the problematic and generally unused Mobile Data Units in the Fire and Police units.
- A new Town website CMS should be selected based on its support and enhancement of mobile devices and communications.

Maximize Value in Purchases and Other Investments

FINDING(S) – Any procurement made by IT should be carefully selected to maximize the value to the end users while minimizing investment by the Town. For example, purchasing chromebooks is significantly cheaper than purchasing iPads.

RECOMMENDATION(S) –

Centric recommends:

- The Dedham IT department should take advantage of special procurement contracts whenever possible. There are Massachusetts contracts under COMMBUYS, and all government agencies can utilize WSCA (Western States Contracting Alliance), which is usually the best pricing.
- Further, there are many open source (generally free) software tools and applications available to government. Cloud applications can also be free or very low cost like Google applications. The point is to make any significant purchase the final option rather than the first.

Town of Dedham Printer Consolidation

FINDING(S) – Dedham has too many printers under their managed services contract (and those not covered under contract). Many offices, such as Finance have more than 4 printers for four staff members. It is a wasteful use of printers, and adds to the costs per print the town has to pay.

RECOMMENDATION(S) –

Centric recommends:

- Only those staff who can make a cogent case to the IT Director for use of a desktop printer should be allowed to keep the printer..
- Each office should have one MFU (Multi Function Unit) which scans, faxes, and copies, and these printers should be the *primary* printer for that office staff. That MFU should be under a renegotiated managed print services contract (with lower price for B/W prints than color). ***See Project 32 "Town of Dedham Offices Printer Consolidation" for further details.***

Apple Vs PC

FINDING(S) – Currently the IT department of Dedham has switched from PCs to Apple computers for desktop computers. These desktop units run Microsoft Windows natively. IT reported to Centric that Apple computers were selected because they are more reliable. This is somewhat contradicted by the fact that each Apple computer has a purchased AppleCare warranty with it.

Apple computers are certainly well built and well respected, but that is based on their running Apple's operating system *not* when running Windows. These computers are optimized for the Apple operating system.

That said, modern PC desktop units are generally reliable and robust, and thus are purchased with a manufacturer included 1 to 3 year warranty. If they don't show errors in the first week, then they will run for extended periods without hardware errors.

RECOMMENDATION(S) –

Centric recommends:

- That a desktop computer refresh schedule be created by the IT Director, and PC computers running Windows replace any decommissioned Apple computers.
- Purchasing PCs will save the Town approximately 40% of the total price of purchasing Apple computers. This savings can be used to accelerate the refresh cycle, or for other prudent procurements. ***See Project 33 "Select a new PC and laptop platform, and tie to a three year refreshment cycle" for further details.***

Free Applications Vs MS Office

FINDING(S) – Currently the IT department of Dedham installs the full Microsoft Office Suite of applications on every computer when a computer is deployed or reimaged.

There is no doubt that for individuals word-processing large complex documents, or creating excel workbooks, or complex presentations, would benefit best from using the MS Office Suite. However in aggregate this a significant procurement cost to the Town. For individuals who are not hard-core MS Office users, there are *no cost* alternatives that may better serve the Town and users, and they readily exchange files and formats back and forth between them and MS Office users.
One of the reasons that MS Office has proliferated in the Town is that it includes the MS Outlook mail client. What may not be evident is that the mail server is actually a Zimbra mail server. End users generally are unaware that when using Outlook with Zimbra a significant level of ease of use and functionality is lost.

RECOMMENDATION(S) –

Centric recommends:

- By default when a new desktop computer or laptop is purchased MS Office should not be installed. The IT Director should confer with the computer recipient to determine whether MS Office is needed or not.
- If MS Office is not needed, the computer recipient can select OpenOffice (a very MS Office-like suite of applications), or Google applications which include word processing, spreadsheets, and presentation software. ***See Project 34 "Deploy non-Windows application suites on select desktops" for further details.***
- As soon as feasible, a user guide to the Zimbra mail client should be created, and then a change to the Zimbra desktop mail client announced in advance to the end users. Some just in time training may also be required. Then all computers can have the Zimbra mail client automatically installed upon the next reboot. If a user has a valid reason for not wanting to stay with the Zimbra client, and they have MS Office installed, then Outlook can be reconfigured as the desktop mail client.

Purchase Plotter/Scanner for Town Hall

FINDING(S) – While a plotter is available in the DPW offices, the Building and Planning departments do not have access to a plotter/scanner and thus cannot create digital images of plans, maps, and designs.

RECOMMENDATION(S) –

Centric recommends:

- That a combination Plotter/Scanner is purchased and installed in the Building Department
- If the scanning components is too expensive, at least provide a plotter for electronic documents to be rendered into paper format for committees use and storage.. ***See Project 31 "Purchase Plotter/Scanner for Town Hall" for further details.***

Purchase Touchscreen Monitors for EOC/Meeting Room

FINDING(S) – Large monitors are currently installed in the meeting room of the basement of Town Hall. These monitors are hooked to apple computers and difficult to use, and they are not connected directly to the Dedham TV system in the room. Staff attempt to use these monitors for many review board and other committees.

RECOMMENDATION(S) –

Centric recommends:

- That large touch screen monitors be installed in the conference room.
- That these monitors are hooked as inputs to the Dedham TV system in the room
- That these monitors accept input from USB, WiFi, as well as wired access.
- These large screen would better serve the boards and committees that meet regularly in that conference room.. ***See Project 35 "Touchscreen Monitors in the Downstairs Conference Room of Town Hall" for further details.***

Legislative & Regulatory Compliance

3 Key Opportunities:

1. Begin paper and electronic records compliance
2. Align Payroll to meet M.G.L. c. 41 section 56
3. IT Director to develop data security WISP

One generally doesn't think of legislative and regulatory compliance as falling into the domain of IT, however it is technology that is expected in many or most cases to remediate processes and procedures to ensure that compliance can be achieved. Some think of federal and state laws and regulations as 'unfunded mandates', and by default any law or regulation that does not include a financial reward for its achievement could be viewed that way. Regardless compliance means what it says, but it frequently can be viewed as movement along a spectrum of compliance. Some regulations are difficult to attain unless addressed piecemeal, and some regulations require interpretation to ensure that they are relevant to the situation and not contradictory with other regulations. All of these actions move municipal compliance forward, and all are treated by the courts as positive actions of good faith by the municipality.
That is why Centric will point out areas of non-compliance, and make recommendations that will move the Town of Dedham further along the spectrum of compliance. However we do not believe it feasible for all compliance issues to be addressed at once and completed immediately.

Resources:

- Massachusetts Court System - Code of Massachusetts Regulations (CMR)
- The Commonwealth of Massachusetts - General Laws
- A Small Business Guide: Formulating a Comprehensive Written Information Security Program
- Sample Template: Massachusetts Written Information Security Plan

Records Management

FINDINGS - The proper maintenance of government records, and their availability to stakeholders, is a key requirement of government transparency, and subject to a number of Massachusetts laws and regulations (see below): The Town of Dedham is working diligently, especially in FY15 as they prepare for the move of Town Hall, to digitize records so that they do not need to be stored in paper format in the new location. That said, under a strict interpretation of Federal and State law and regulatory requirements, the Town of Dedham is currently working toward but not in compliance with Massachusetts records transparency laws, and relevant records retention standards including:
* 950 CMR 32 - 950 CMR 32.00 shall be construed to ensure the public prompt access to all public records in the custody of state governmental entities and in the custody of governmental entities of political subdivisions of the Commonwealth, and to ensure that disputes regarding access to particular records are resolved expeditiously and fairly. 950 CMR 32.00 shall not limit the availability of other remedies provided by law.
* M.G.L. c.4 sec 7(26) – 15 categories of exemption to disclosure

* M.G.L. c.30A sec 22 – Open Meeting Law; meeting minutes & records
* M.G.L. c.30 sec 42 – State of Massachusetts Records Conservation Board rights
* M.G.L. c.66 sec 1, 8, 9 – Public Records; Supervision of public records, powers and duties; Preservation and destruction of records, books and papers; Preservation and copying of worn, etc. records
* Records in Common Schedule (01.070-01.081) – the Massachusetts Municipal Records Retention Manual found at http://www.sec.state.ma.us/arc/arcpdf/MA_Municipal_Records_Retention_Manual.pdf.

The fact of the matter is that the requirements of the various above quoted regulations and laws are too constricting to be applied manually. The Town Clerk, and elected official, is the official Records Officer for the Town, but his focus is primarily on printed records that are stored in the Town Clerk office and other designated storage areas. The implications of electronic records and their relation to law and regulations is a compliance effort yet to be undertaken.

RECOMMENDATION(S) –

Centric recommends:

- A municipal records retention policy should be created for Dedham by the Town Clerk to put relevant regulations into understandable and actionable layman's terms for staff.
- A coherent file storage structure needs to be created by IT to produce a common records file share, with folders that correlate to records categories defined by the Town Clerk for records retention management. This file share must be backed up daily, and deletions only permitted by Town Clerk or IT administrative staff.
- An Enterprise Content Management system must be acquired and configured to incorporate as many of the state laws and regulations as feasible. This system will incorporate 'meta-tags' for speedy text searching, full-text searching for those records so indicated, and provide for OCR (optical character recognition) itself or support a tools such as Adobe Acrobat's OCR functionality (i.e. scanning a printed document and turning it into an editable text file). ***See Project 19 "Enterprise Content Management (i.e. Document Management" for further details.***

Payroll

FINDING(S) –Employees are paid during their current pay periods (i.e., prior to some actual work) and thus time records reported to Payroll are only estimates for that week. Accruals and time discrepancies are managed after the fact and thus open to errors, unintentional or otherwise, that lead to additional expense for the Town. This payment practice has been determined by the Department of Revenue as being out of compliance with Massachusetts law (M.G.L. c. 41 section 56).

RECOMMENDATION(S) –Prior to deploying LOGOS payroll & timekeeping, all employee payroll schedules must align with Massachusetts law (M.G.L. c. 41 section 56) and be processed weekly or bi-weekly after the work-week that the payroll record represents. In other words, employees can no longer receive a payment on Friday for work completed in that same week since payroll processing timelines do not allow for reporting and recording of accruals and time records in the same week. *Most non-DPW employees are paid bi-weekly. So Dedham needs only catch up one week to eliminate this issue. There are several months in the year which have an extra pay period (e.g. May and July). During these 'extra' pay periods, there is no deduction for healthcare since it was*

already deducted in the first two periods. Impact of this payroll period change could be mitigated by taking the extra week during one of these two extra pay periods.

Data Privacy

FINDING(S) –The Town should be on the road to compliance with Federal and Massachusetts regulations for data security and privacy to meet Massachusetts standards under 201 CMR 17. Centric security analyst Gus Deeb performed a security assessment of both the Town and School IT departments. The Town of Dedham was not far along on the spectrum of compliance.

RECOMMENDATION(S) –

- Appendix T6 contains specific material actions necessary to be performed by IT staff to migrate into compliance with Massachusetts standards under 201 CMR 17.
- First the IT department must identify and document all data currently stored in paper and electronic format that would qualify as Personal Information (PI) under 201 CMR 17.
- Next the IT Director must create a comprehensive Written Information Security Program (WISP) that meets the standards of 201 CMR 17.
- In collaboration with HR Director, this WISP must be used to provide regular ongoing employee training, and provide for mechanisms to monitor employee compliance.
- In collaboration with the Town Clerk, IT Director should ensure physical security for all printed or electronic copies of PI should be examined and if lacking be implemented.
- Control and management of all user account based security (including roles) should be examined to ensure adequate user access control.
- Any PI that is part of an electronic channel between Town computer and 3rd party provider should be examined to ensure it is using SSL and/or certificate based data security.
- Any PI that is stored on a laptop or mobile device should be either removed from the device, or a simple disk encryption tool or feature used to protect the data.
- ***See Project 18 "Data Security Compliance" for further details.***

SECTION II – DEDHAM PUBLIC SCHOOLS

Introduction

The Dedham Public School system ("DPS" of "Schools") includes 7 schools (1 PreK/Kindergarten; 4 Elementary; 1 Middle School and 1 High School.) DPS has over 540 staff that serve an enrollment of 3,000 students.

Centric has prepared a Findings and Recommendations section specific to Dedham Public Schools that is organized around two main questions.

- Does technology effectively support the core (teaching and learning) and administrative functions of DPS?
    - Teaching and Learning
    - Human Resources and Professional Development
    - Stakeholder Engagement and Communications
    - Data Analytics and Decision Support
    - Finance and Procurement
    - School Specific Administrative Processes

- Can the DPS Technology Team and Information Technology (IT) infrastructure effectively support DPS today and into the future?
    - IT Planning and Alignment
    - IT Governance, Processes and Standards
    - IT Policies including Internet Safety and Personal Information Security
    - Technology Team Organization, Staffing and Performance
    - IT Budget, Expenditures and Procurement
    - Technology Infrastructure - Network, Devices, Peripherals and Communications

Technology primarily exists to enable the core and administrative functions of any organization. Therefore, we start with an overview of how effectively technology is enabling the core and administrative functions of DPS. Only then do we address the Technology Team and infrastructure. Technology specific recommendations are presented last for a reason. Academic objectives must increasingly guide and inform technology requirements. Technology is a key lever to the transition to next generation, blended learning. However, ultimately, the success of the technology might ironically be best measured by its invisibility as it becomes more deeply integrated into teaching and learning practices and it seamlessly supports administrative productivity and parent/community engagement.

The strategic themes carry-over from the Town Section of the IT Report and align with School-specific themes and objectives as follows:

IT Report Strategic Themes - **Town and Schools**	Alignment with Current **School-specific** Strategic Objectives and *Superintendent's 30 Day Plan Categories (in italics)*

Stakeholder Engagement	Support Open Communication: To increase public awareness of school needs and accomplishments. Enhance the Dedham Public Schools website. *District and Community Support for Education*
eService & Transparency	
Infrastructure Governance, Planning, Collaboration & Shared Services	*Strategic Planning and Leadership*
Productivity, Performance & Innovation	*Teacher Recruitment and Professional Development*
IT Applications & Technology	*Student and Staff Access to Technology and Data*
Public Safety, Security & Privacy	
Fiscal Responsibility	
Legislative or regulatory compliance	
Schools Only Themes	Academic Excellence: Expand standards-based learning. Continue to improve student performance through the integration of existing technology and explore new applications to strengthen math skills. Continue to improve student performance through the integration of existing technology and explore new applications to enhance mastery. *Student Achievement. Curriculum and Assessment.*

In each section, we provide: a brief description including Centric's findings of strengths and improvement opportunities; performance benchmarks where available; references to leading practices and examples; and strategic recommendations and projects.

The Massachusetts Department of Elementary and Secondary Education (DESE) provides annually updated Local Technology Plan Guidelines that cover 46 practices in 6 benchmark categories. Overall, DPS is doing well as it meets or exceeds 40 of the 46 practice standards.

	CENTRIC FINDINGS	
Massachusetts Department of Elementary and Secondary Education - Local Technology Plan Guidelines	Meets or Exceeds	Partially Meets but Needs Improvement
Benchmark 1 - Commitment to a Clear Vision and Implementation Strategies	10	1
Benchmark 2 - Technology Integration and Literacy	6	1
Benchmark 3 - Technology Professional Development	3	1
Benchmark 4 - Accessibility of Technology	14	2
Benchmark 5 - Virtual Learning and Communications	4	0
Benchmark 6 - Safety, Security, and Data Retention	3	1
TOTAL	40	6

.

Does technology effectively support the core (teaching and learning) and administrative functions of DPS?

TEACHING AND LEARNING

Brief Description

The Dedham community has provided strong support for technology investment in DPS. DPS leadership has invested effectively to provide technologies that are generally greater those of peer school districts in Massachusetts. As a result, most teachers integrate technology into their instruction and teachers and students have expectations for continued advancements in instructional technologies.

DPS is a leader in Massachusetts in the deployment and integration of technology to support teaching and learning. DPS has embraced and started to implement instructional technology concepts and standards including:

- Common Core State Standards
- ISTE Technology Standards for Students, Teachers and Administrators
- Massachusetts School Technology and Readiness Chart (STaR)
- Technology Scope and Sequence (Elementary, Middle School, High School)
- The Elementary and Secondary Scope and Sequence mapped to the DPS curriculum
- Blended learning models (rotational, flex, self-blend and enriched-virtual)

To support teaching and learning, DPS provides core and supplemental software applications including but not limited to the following:

- Core - Lexia (literacy,) Acuity (multi-subject assessment,) FASTTmath Next Generation and Fraction nation (math)
- Supplemental - Reading A-Z, RAZ Kids, Bookshare, SmartBoard Notebook, Follett's Destiny, Discovery Education, Apex, ActiveInspire, KeyTrain, MySkillsTutor, Everyday Math (EDM), Treasures, Geometer's SketchPad, Music Theory, Aurelia Ear Training, Type to Learn, Smart Moves, Animationish, Writing with Symbols, Boardmaker, Kaufman program, Stationery Studio, Inspiration, Kidspiration, Earobics, Dragon Nationally Speaking, LEGO-WeDo. (A more comprehensive list of approved iPad Apps is available on the DPS website - Link to Apps Used in DPS)

DPS also addresses the special and individual needs of each child with assistive technologies and alignment with the Universal Design for Learning (UDL.) Members of the technology team work with the DPS Special Education staff to design and implement software and hardware strategies based on the individual needs of children.

While DPS is an instructional technology leader in Massachusetts, it is a relative comparison as there are several examples of more advanced leaders outside of Massachusetts. K-12 education overall is still in

the early stages of transition to a blended learning model. DPS teachers are excited about the potential for technology and have adopted it to varying degrees in most classrooms. For example, most teachers are actively using the interactive white boards (aka SmartBoards) and have digitized content and a large number of teachers are using the Blackboard Engage system to post assignments and materials for online student and parent access. However, many DPS classrooms are fairly traditional with the teacher presenting in the front, desks in a row, and only occasional use of available technologies such as iPads. Also, students generally cannot access learning in a self-directed manner to move at their own pace. This is increasingly more critical as Michael Friedman, Research Fellow at the Harvard Initiative for Learning & Teaching, points out that: *In the current landscape where blended and online courses are becoming increasingly common, the need for students to self-regulate and optimize their own learning is now more important than ever.* link to Friedman reference

Dr. Ruben Puentedura created the SAMR Model to help educators understand how technology is being integrated to improve instruction.

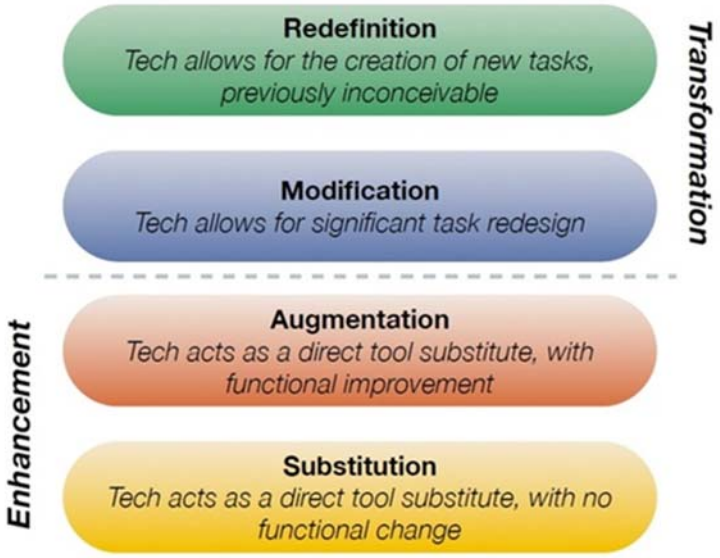


Image is the creation of Dr. Ruben Puentedura, Ph.D. http://www.hippasus.com/rrpweblog/

DPS teachers have embraced instructional technologies and are moving up the SAMR continuum but most are still in the Substitution and Augmentation phases. In order to move into the Transformation stage, DPS leadership must help teachers to redesign instructional practices in order for technology enhancements to be fully realized.

According to Andrew Calkins and Kristen Vogt, *"next generation learning is catalyzed and informed by:*

- *A deepened understanding of learning: how, where, and why students (and people of all ages) learn most effectively*
- *A deepened understanding of learners: what's required to engage and meet students' complex, individual needs, especially given the vibrant diversity of the nation's current and future population of young people*
- *The recognition that the world has changed: so thoroughly, in fact, that it requires a much higher level of achievement for much higher percentages of students"*

Source: Next Generation Learning: The Pathway to Possibility - NGL source link

To help describe the new instructional design enabled by technology, DPS has used the term ***Blended Learning*** which is defined by the Christensen Institute as:

Blended learning involves leveraging the Internet to afford each student a more personalized learning experience, meaning increased student control over the time, place, path, and/or pace of his or her learning. The definition of blended learning is a formal education program in which a student learns: (1) at least in part through online learning, with some element of student control over time, place, path, and/or pace; (2) at least in part in a supervised brick-and-mortar location away from home; (3) and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. - See more at: Blended learning source link

Centric uses the term Blended Learning in the report to represent the next generation learning design that DPS must adopt in order to fully leverage technology to support college and career readiness for all students. The design must be anchored in the cognitive-science and research on how children learn best. From here, design elements can be considered such as personalized learning, growth mindset, whole child development, performance-based learning, deeper learning, anytime/everywhere learning, student-ownership, collaboration, and 21st century skills. Learning design models and frameworks (e.g., flipped, competency/proficiency-based) can also inform the DPS design but it must be anchored in learning science and research.

Unfortunately, to date, conclusive research on the best Blended Learning practices and models is limited. DPS must be willing to continuously and rapidly build, measure, and learn (aka "lean startup" approach) and scale only the best new tools and concepts. The Technology Team has been supporting and promoting innovation and DPS educators have responded with a healthy culture of collaborative experimentation. DPS educators have already started experimenting with different pedagogies and enabling technologies and this must continue. Now, all of the District leadership needs to systemically understand, embrace, and support the innovation. DPS as a system must identify the best practices and scale them in order to provide equitable access to excellent instruction in a coherent manner.

DPS parents and the community are very proud and supportive of how technology supports teaching and learning in Dedham Public Schools. They are also appropriately concerned about the risks and issues that have emerged as technology access has become ubiquitous. The Technology Team, DPS educators, and community groups have done a good job in addressing the potential issues arising with the onset of immersive technology and should continue to monitor and adjust usage to protect the social, emotional and cognitive development of students.

DPS has new leadership that understands the importance of infusing technology to support blended learning. The upcoming process of developing a new 3 Year District-wide Strategic Plan presents a important opportunity for DPS to clearly establish the next generation design criteria for blended teaching and learning. Based on the criteria, DPS and its stakeholders can take full advantage of the current and emerging break though technologies to make education more engaging and relevant and do so in an affordable manner. As just one example that is particularly timely, DPS might even consider using technology to help eliminate snow days in the near future.

Benchmarks

Centric rated DPS as meeting or exceeding (M) all eight of the instructional technology-related DESE benchmark elements.

Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	CENTRIC Rating
Benchmark 2 - Technology Integration and Literacy	
Technology Integration	
Outside Teaching Time - At least 90% of teachers use technology every day, including some of the following areas: research, lesson planning, organization, administrative tasks, communications, and collaboration. Teachers explore evolving technologies and share information about technology uses with their colleagues.	M
For Teaching and Learning - At least 90% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data analysis, communications, and collaboration. Teachers integrate evolving technologies that enhance student interest, inquiry, analysis, collaboration, and creativity.	M
Technology Literacy	
At least 90% of eighth grade students show proficiency in all the Massachusetts Technology Literacy Standards and Expectations for grade eight.	M
100% of teachers are working to meet the proficiency level in technology, and by the school year 2014-2015, 90% of teachers will have mastered 90% of the skills in the Massachusetts Technology Self-Assessment Tool (TSAT).	M
Benchmark 5 - Virtual Learning and Communications	
The district encourages the development and use of innovative strategies for delivering high-quality courses through the use of technology.	M
The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level.	M
Classroom applications of virtual learning include courses, collaborative projects, field trips, and discussions.	M
The district maintains an up-to-date website that includes information for parents and community members.	M

References:

Models

- Blended-Learning Model Definitions
- Blueprint for Personalized Learning in Delaware - http://www.rodelfoundationde.org/blueprint/
- Adaptive learning
- School Models - https://www.edsurge.com/school-models
- Competency-based Learning - http://www.competencyworks.org/

Brain-research and learning science

- *Breakthrough Leadership in the Digital Age: Using Learning Science to Reboot Schooling*, by Frederick M. Hess and Bror Saxberg (book)

Leading schools/districts and New England resources

- Intrinsic Schools
- Schools Avoid Snow Days Article

Massachusetts advocacy groups and resources

- DESE Future Ready link
- Future Ready MA link - MA Business Alliance for Education (MBAE)
- New Opportunity to Lead report
- Jobs for the Future - The Role of Digital Technologies in Deeper Learning

National advocacy groups and resources

- Future Ready Schools - National Initiative
- Digital Promise - League of Innovative Schools – http://www.digitalpromise.org/league

Open Education Resources (OER) and Learning Management Systems/Platforms (LMS)

- A 7-Step Guide to Creating Your Own Open Educational Resources
- Can Your LMS Do This? 8 Questions You Need To Answer
- Tips for choosing best learning management system (LMS)

Recommendations/Projects:

- Use the new strategic planning cycle to establish next generation learning design criteria. Clearly define criteria and seek buy-in from all key stakeholders. Establish bold, thought-provoking goals over the next 2-5 years in order to help all stakeholders understand the promise of technology that is deployed appropriately and integrated to improve pedagogy.
- The volume of new education hardware and software tools is very large and increasing daily. https://www.edsurge.com/products/ The challenge for DPS is to pick the right solutions at the right time based on factors such as instructional fit, product stability, and cost. The DPS Technology team already uses a process to vet the most appropriate applications. A similar process must be deployed for all academic resources as most will include a significant digital component. Academic and technology leadership must work collaboratively in this process to allow new practices and products to be mapped and moved methodically towards DPS review, pilot, and selection based on proven success and cost effectiveness elsewhere. Once solutions are selected from the pipeline for pilot or implementation, a clear project plan should be developed and managed as part of a district-wide project management process. This will be critical to support coherence and effective execution during a turbulent but necessary period of many improvement initiatives. Investigate how Summit Schools and others are leveraging a lean startup model - http://www.summitps.org/approach/culture-of-innovation. Math and world languages are two areas that could be ready for a breakthrough project. In the case of math, focus on what adaptive applications best support procedural fluency and/or conceptual understanding and for which groups of students. (Refer to the edSurge Math product Index)
- The DPS Technology Team already engages with organizations like TEC, MassCUE and other districts to share knowledge and experiences. Hopefully DPS will be able to leverage these relationships to more formally share research and pilots and explore shared services wherever possible. Also, DPS leadership and groups of teachers should visit school districts in New England that are in the process of a blended learning transition and connect with non-profits and foundations that can help. (see the *references* at the end of this section for examples.)
- Consider joining a national organization such as Future Ready Schools or the League of Innovative Schools in order to collaborate with other leading school districts on this challenging journey. Also, explore partnerships with advocacy groups in the New England area such as the Nellie Mae Foundation, Massachusetts Business Alliance for Education (MBAE,) Jobs for the Future, and the Highlander Institute.

- Clearly list and analyze all core, supplemental and intervention curricular and assessment resources from textbooks to materials – both analog and digital. Identify which materials are best kept analog and which can be better delivered and consumed digitally. Commit to migrate all resources to the best delivery mode and medium based on the academic goal. Beware of publishers that claim that simply putting text online meets digital expectations. As part of the resource review, consider how the burgeoning supply of open education resources (OER) can better meet pedagogical needs at a lower cost. Also, encourage resource providers to comply with IMS Global standards including Common Cartridge, Learning Tools Interoperability (LTI), and Question Test Interoperability (QTI.)
- DPS students will need to be able to select and complete online courses as they progress through lifelong learning. DPS can help to prepare students by requiring that each student complete at least one online course prior to graduation. There are many courses currently available from sources including: APEX (which is currently used to support the DPS credit recovery program); TEC Online Academy; the TECCA Commonwealth Virtual School; and the Virtual High School. This is just a brief list as the number of online learning courses and resources is continually expanding. DPS should also develop its own virtual courses as part of the mix and every course should have increasing online access and digital enhancements.
- Dedham should support personalized assessments that provide students adaptive feedback and help to measure progress. Teachers should be able to select from the best digital assessment items and to create their own quizzes, tests, and performance items in a platform that supports functions like automated grading. Regardless of the assessment source, students, teachers and parents should receive useful, integrated information on progress so that they can collaboratively identify the best personalized supports and interventions.
- Rethink the use of space (classrooms, libraries) to support mobile and applied learning. Apply positive lessons learned from the current DPS Makerspace pilot more systemically. The Dedham Library Innovation Team (DLIT) recently won an award to expand their Makerspaces which *include educational manipulatives that allow students to build, create and participate in hands-on problem solving and spatial skill development while collaborating with each other.* *link to reference article*
- The Dedham Public Library provides a natural extension of learning time and space for DPS students. DPS has collaborated well with the Dedham Public Library as reflected in DPS Library Media Plan. Dedham Public School 5 year Library Media Plan - 2012 DPS should build on this positive history to create a seamless continuum of learning and student projects between DPS and Library environments.
- Set a goal of “no more snow days.” Like other districts are already doing, DPS should be able to deliver a full instructional day virtually within the next several years.
- Visit Sanborn Regional School District, Kingston-Newton, NH http://web.sau17.org/ to see an example of the New Hampshire Pilot Competency-Based Assessment (PACE) Program – designed to reduce standardized testing with locally managed assessments.
- Visit Casco Bay High School, Portland, ME to see their deeper, expeditionary learning model supported by technology. http://cbhs.portlandschools.org/home

Recommended Projects **(See Appendix S1 for more details)**

- **Chromebook 1:1 in Middle School -** Continue the piloting and preparation to provide all Dedham Middle School students and teachers with a Chromebook at the start of the 2015-16 school year. **(see Project #1)**
- **Explore and pilot video management and learning object repository options** - Strategically reevaluate what video means for DPS today and over the next three years. Consider factors including: instructional design, Google platform, open educational resources (OER,) the Learning Registry and new interoperability standards. **(see Project #2)**
- **Pilot a New Instructional/Learning Management Platform** - The best platforms allow districts to develop and map curriculum; teachers to design and deliver lessons and assessments; and, for students to access learning and assessments anytime. Learning platforms will be the backbone of a next generation learning strategy. **(see Project #14)**
- **Increase device access at the Elementary Schools** - Identify the device access required for students at each grade level to support equitable learning at school and at home. **(see Project #18)**
- **Pilot new interactive projector/display solutions to replace SmartBoards** - DPS is already testing alternative projector models such the Epson Brightlink that hold the promise of lower total cost of ownership and greater functionality. **(see Project #19)**
- **Take a fresh look at classroom and library technology requirements based on the new Strategic Plan and Maker Space pilots** - Start by designing the best learning environments for students including defining resources. **(see Project #20)**
- **Transition to Chromebooks (or better devices) in grades 9-12** - All DPS Middle School students will have Chromebooks starting in 2015-16. That device is also well suited for grades 9-12 so students should be provided similar (or better) devices as they matriculate. **(see Project #21)**
- **Pilot alternatives to teacher desktops** - As desktop computers are due for a refresh, encourage teachers to choose the technology configuration that best allows them to meet the mobile teaching and learning design in their school. **(see Project #22)**

HUMAN RESOURCES AND PROFESSIONAL DEVELOPMENT

Brief Description

Human resources is a key support process for DPS as research shows that quality educators are the most important factor in determining student achievement. The DPS Technology Team appreciates the critical importance of professional development in order to help educators effectively integrate technology. As highlighted in the most recent Dedham Public Schools Technology Plan, the Technology Team considers these *essential questions*:

- *How will we continue to provide professional development to meet the requirements set forth in the Common Core State Standards and ISTE Technology Standards for students, teachers, and school administrators?*
- *How will blended-learning models be supported in our existing technology-rich school environment?*
- *What type of professional development should be offered in order to support existing initiatives including increasing the number and variety of devices in the classroom?*

- *How will the district's technology professional development be integrated with the District Professional Development Plan?*

These same questions should be addressed as part of the district-wide strategic planning process.

Examples of current DPS technology-related professional development include the following:

- Technology day of training for new staff
- Formal training related to new program initiatives
- After-school workshops, App Camps, and virtual training
- Recommendations of educational opportunities outside of the district including conference/seminar attendance
- Tuition reimbursement and vouchers
- Visits to leading schools/districts

Centric observed an example of the high--level of engagement and participation at an App Camp hosted by the Technology Team and lead by the Technology Integrator. The event was very well attended with a high-level of energy, collaboration and teacher ownership.

Despite the positive efforts of the Technology Team, DPS has not effectively used technology in a systemic fashion to support the human resource lifecycle (i.e., recruitment, hiring, onboarding, feedback and evaluation, payroll and benefits, etc.) We expect this to change with new leadership at DPS including a new HR Director. As highlighted in the recommendations below, this should include better use of the New World LOGOS HR module as well as best-of-breed recruitment, evaluation, planning and personalized learning tools. DPS should also continue to strive to make professional development as personalized, engaging and virtually accessible as the instruction they are providing to DPS students.

Benchmarks

Centric rated DPS as meeting or exceeding (M) three out of the four technology professional development related DESE benchmark elements.

Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	**CENTRIC Rating**
Benchmark 3 - Technology Professional Development	
By 2015, at least 90% of district staff will have participated in high-quality, ongoing professional development that includes emerging technology issues, technology skills, universal design, and research-based models of technology integration.	M
Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, study groups, and online professional development. *(NI - The Technology Department supports this but it needs to be better integrated with and supported by district-wide PD.)*	NI
Professional development planning includes an assessment of district and teachers' needs. The assessment is based on the competencies listed in the Massachusetts Technology Self-Assessment Tool.	M
Administrators and teachers consider their own needs for technology professional development.	M

References

- How Teachers Are Learning - Professional Development Remix
- How to Transform and Personalize PD
- Teachers Need Personalized Professional Development/
- MA Expanded Learning Time (ELT)
- New Collaborative to Redesign School Day to Increase Learning Time

Recommendations/Projects:

- Clarify all DPS staff and stakeholder roles and responsibilities required to support the transition to Blended Learning. In particular, start by collaboratively defining what is expected of DPS leadership at the School Committee, District and school levels. Academic leadership - with constant input from teachers - must clearly define the innovations in learning and changes in pedagogy they want technology to enable. Link to Things Every Principal and Administrator Must Know (and Do) To Be a Digital Leader
- In developing the teacher evaluation and teacher self-assessment tools, incorporate Blended Learning elements such as: high expectations; personalization; active learning; collaboration; progress monitoring and feedback; and appropriate digital learning.
- The teacher evaluation system that DPS chooses should also allow teachers and principals to collaboratively plan a personalized professional growth plan to close performance gaps and build on strengths.
- The DPS professional learning and growth model should align with the personalized, self-directed, hands-on learning that DPS should provide its students. (The Technology Team currently supports this with activities like App Camps.) Learning can be “flipped” as background knowledge can be acquired virtually and confirmed with online assessments so that face-to-face time is used to collaborate and create. Videos of exemplary practice can easily be accessed and reviewed online. Many videos are free online and DPS can develop its own repository.
- The Technology Team demonstrates a culture of collaboration and flexibility. Model this culture throughout the district.
- Explore how technology can help to re-engineer master schedules and create up to one day a week of dedicated development time for teachers. Redesign components that can help achieve the time reallocation include: cross-curricular subjects with longer periods to support interdisciplinary projects and personalized learning; modelling college scheduling by leveraging nights and weekends; utilizing virtual/online course delivery methods; and implementing mastery or proficiency-based credentialing.
- DPS has begun to automate some HR tasks with the Talent Ed software. There is also significant promise with the new evaluation software being considered and improved usage of the New World/LOGOS HR and Payroll suite. The new DPS HR Director should work with the DPS Technology Team and collaborate with the Town to implement the New World-LOGOS HR Module to automate HR processes including time entry for part-time employees. Also, replace Harpers with New World-LOGOS functionality and explore bringing payroll processing in-house.

Recommended Projects **(See Appendix T5 for more details)**

- Refer to the Town projects list in Appendix T5 for details on the following joint Town/School HR projects - **#12 New World System LOGOS HR System Pilot; #14 New World System LOGOS Payroll Pilot.**

STAKEHOLDER ENGAGEMENT AND COMMUNICATIONS

Brief Description

Based on the stakeholder surveys and focus group, DPS provides satisfactory engagement with the parents and community but there is room for improvement. The current Blackboard Engage website platform supports district, school and individual teacher websites. It has been sufficient but it is need of an upgrade. It is a source of extensive information but access and navigation is not optimal. Once the Engage LMS features are transferred to a new platform, DPS should explore a best of breed website platform.

The parent/community stakeholder surveys and focus group also indicated increasing dependence on social medial tools such as Facebook, Instagram and Twitter for information. DPS should allow parents to customize how they want to receive information and allow community members to opt in to customized communication feeds.

Several districts have developed universal help desks to support resolution and analysis of stakeholder requests beyond just technology. DPS does not have the resources or volume to justify a dedicated, centralized general help staff but should explore a tool that will allow all DPS staff to easily report calls, issues, and requests and enter those that cannot be immediately resolved into an automated workflow. The Town is considering using Cartegraph for a similar purpose to support citizen requests. This is not an immediate need but DPS should monitor the Town's progress.

Benchmarks/References:

- Companies Honing Tools to Survey Students
- Sample survey tool - http://www.tomorrow.org/speakup/
- The Roles of Parent and Community Engagement in Student Success

Recommendations/Projects:

- DPS has realized reductions in paperwork and duplicate entry by automating processes with applications like the PowerSchool student information system. Despite the improvements, there is still too much paperwork and re-entry of data which causes frustration among parents and staff. We support the planned DPS *Information Integration Improvement Initiative (4i's) Project* which is another important step toward eliminating redundancy.
- Standardize district-wide stakeholder surveys based on satisfaction with progress towards next generation learning and innovation as opposed to just technology. Powerful new survey tools have emerged that are more comprehensive and address topics such as school climate; campus culture; parent engagement; support for teachers; workplace environment; social and emotional learning; college and career readiness; and technology integration. Research survey providers and issue an RFP for a multi-year solution. Make certain that the survey process capture the

student voice which can also be a valuable input into instructional effectiveness. Include questions related to the effective integration of technology based on standards such as ISTE, SAMR, TPAK and/or models from organizations such as The Christiansen Institute, ISTE, and Next Generation Learning Challenges. Ideally, embed a number of "standardized" questions from sources such as Speak Up that will allow DPS to measure their progress against other districts nationally.

- Parental communication, awareness, and engagement will be critical to understanding all aspects of the transition to next generation learning. Relative to technology, DPS should help to convene parents to openly and realistically understand the challenges – such as distractions and bullying - that come with the many positive attributes of technology. While DPS must contribute, it is important that the conversation be owned as much as possible by groups in the community-at-large so that it is not perceived as a "school-only" issue. (For example, The Parent Connection groups at DHS and the Middle School have demonstrated leadership in this area by recently hosting a "Bullying, Technology and Youth Depression" presentation.)
- Continue to seek as many ways as possible to communicate with and engage parents. Social media preferences vary and change quickly so try to maintain a single source of truth (e.g., the website) and replicate that information across other channels such as Twitter, Facebook, and Instagram. Also, be mindful in the type of information you share and collect in order to comply with open meeting requirements and similar laws and regulations. An easy first step is to enable the DPS Blackboard Connect mass notification system to broadcast not only calls and emails but also text messages, emails and social media updates based on parent preferences.
- Continue to engage Dedham and area businesses to help teachers and students understand expectations for success in the workforce today and into the future as many of students may be filling (or creating) jobs that currently do not even exist Link to article - Dedham HS students visit area business

Recommended Project **(See Appendix S1 for more details)**

- **Website Redesign** - Once the Engage LMS features are transferred to a new platform, the District should explore a best of breed website platform. **(see Project #23)**

DATA ANALYTICS AND DECISION SUPPORT

Brief Description

DPS does an effective job of meeting local, state and federal reporting requirements - which continue to increase. However, like most K-12 school districts, DPS currently does not use data effectively enough to measure and manage academic or administrative performance. The current challenge starts with assessment data as described in the 2010 National Ed Tech Plan:

Most of the assessment done in schools today is after the fact and designed to indicate only whether students have learned. Little is done to assess students' thinking during learning so we can help them learn better. Nor do we collect and aggregate student-learning data in ways that make the information valuable to and accessible by educators, schools, districts, states, and the nation to support continuous improvement and innovation. We are not using the full flexibility and power of technology to design,

develop, and validate new assessment materials and processes for both formative and summative uses. Pg 25 National Ed Tech Plan 2010 http://tech.ed.gov/netp/

Like other districts in Massachusetts, DPS participates in the MCAS annual summative assessments in English language arts (ELA) and mathematics (grades 3-8 and 10) as well as science and technology/engineering (grades 5, 8, 9/10.) These tests provide valuable data from a long-term, strategic perspective but it comes too late to help teachers impact day-to day instruction. DPS has implemented Acuity from CTB/McGraw Hill for interim assessments in grades 3-8 in ELA and 4-8 in math. Students also demonstrate performance digitally as part of many of the online programs listed in the teaching and learning section of this report. The problem is that the data captured from these assessments is generally not timely enough or presented in a manner to meet the two most important objectives:

1. Provide immediate, adaptive feedback to students as well as progress over time; and,
2. Provide teachers and parents with real-time insights into how each student responds to instruction

From there, data can roll-up to help administrators to evaluate staff and programs. This is more of a bottom-up approach versus the current top-down paradigm that meets some accountability objectives but does little to inform teaching and learning practice.

The challenge for DPS is size and resources. The technology architecture required for DPS to manage and deliver data effectively would include components such as: an assessment management system, an operational data store (ODS), a longitudinal data system (aka data warehouse), data dashboards customized to the needs of stakeholder groups; a single sign-on environment; and common interface protocols. Only large school districts have been able to invest in the required data architecture. DPS must therefore depend on the new cloud-based applications and data analytics tools that are emerging to provide the required information to better inform decisions. DPS is already using the EdWin Analytics tool provided by DESE and should explore other solutions such as DataDirector, EdFi, Illuminate, and Schoolzilla.

References

- A list of K-12 data analytics tools/systems
- Article – The Power of Small Data
- US DOE – Digital Interoperability Resources -
- Sample administrative measures collected by the Council of Great City School districts - http://www.cgcs.org/domain/86

Recommendations/Projects:

- Develop a road map toward effective data use with milestones at the 1, 3 and 5 year timeframes.
- Develop key performance indicators (KPI's) for academic and administrative activities. The district-determined measures - along with existing assessments - will provide more academic performance data. DPS should also develop a brief list of KPI's for administrative processes such as in human resources, procurement, and finance. (It is important to start small with just a few measures so the data collection and reporting does not overwhelm.)

Recommended Projects **(See Appendix S1 for more details)**

- **4i's Project (Information Integration Improvement Initiative)** - As part of this effort, research the latest information on interoperability standards such as Common Education Data Standards (CEDS.) Also, investigate solution providers such as Level Data and Clever. While not specific to interoperability, DPS should also pursue single-sign on. Finally, this is closely related to this project - Assessments and Data Analytics - for Students and Educators First. **(see Project #3)**
- **Assessments and Data Analytics - for Students and Educators First** - Start by auditing all current assessment sources to determine if they provide teachers and students timely and useful feedback in a digital format. Then research and pilot data analytics systems that can capture unstructured data through API's from various systems such as assessments, SIS, behavior, and IEP and report information in a user-friendly manner. **(see Project #15)**

FINANCE AND PROCUREMENT

Brief Description

Please note that DPS has many of the same financial process automation issues as the Town so please refer to the Town report section for more detail. In 2012, The Town of Dedham and DPS jointly invested in an Enterprise Resource Planning ("ERP" or integrated Financial, Procurement & HR management solution) called LOGOS from New World Systems. However, the implementation was incomplete so staff is unable to use LOGOS optimally and many processes remain paper-based and inefficient with multiple inputs of the same data and a lack of financial control, reporting and analysis. Key areas for reimplementation and training are Bank Reconciliation, Budgeting, Human Resource Management, Payroll, Procurement, Project Accounting, and Reporting. Collectively, proper deployment and use of LOGOS could result in large savings in operational funds and capital outlays, and help the Town and Schools stay in compliance with Massachusetts regulations and GASB standards. This will also simplify DPS reporting required by DESE into the Education Personnel Information Management System (EPIMS) and the End of Year Financial Report.

Centric considers the reimplementation and training in LOGOS a critical and timely need and not just for the finance staff but also any individuals involved in financial, procurement and payroll processes.

Benchmarks/References

Sam Rippin, Assistant to the Superintendent for Business and Finance, was hired by DPS in the fall of 2014 and has the required expectations for automated processes, reporting and analytics based on his experience in other Massachusetts school districts.

Recommended Projects (See Appendix T5 for more details)

- Refer to the Town projects list in Appendix T5 for details on the following joint Town/School Finance projects - **#11 Reconfigure & train on New World LOGOS ERP system; # 13 Implement distributed purchase orders & centralized A/P in New World LOGOS system.**

SCHOOL SPECIFIC ADMINISTRATIVE PROCESSES

Brief Description

School districts are complex organizations with responsibility for many administrative and compliance functions. The table below provides an overview of these functions and the supporting DPS applications.

Application Type	Provider	DPS description
Productivity	Microsoft Office 2007 Professional Suite	The Microsoft Office 2007 Professional Suite is loaded on all the student, staff and teacher personal computers in the district.
email, docs, drive, calendar	Google Apps for Education (GAFE)	DPS uses Google Apps for Education to provide email for all staff as well as Google Drive accounts and other apps (Google Docs, Forms, Sheets, etc.)
Email archive	Google Vault	Add-on for Google Apps to retain, archive, search, and export emails for eDiscovery and compliance needs
Student Information (SIS)	Power School	Enrollment, attendance, grades, report cards, transcripts and other student information as well as student and staff scheduling for the district.
Gradebook	PowerTeacher	Student grades
Portal (Student-Parent)	PowerSchool Portal	Parent and student portal for viewing grades, assignments, and attendance. Students submit course requests. Parents can update student info and approve course requests.
Special Education/IEP	eSped	eSped - Special Education Individual Education Plans, offsite cloud based subscription
Library	Destiny	This subscription focuses on district wide use, Pre K - 12 of focused library management software.
Food services/POS/Cafeteria	Nutrikids	Food services and point-of-service (POS) management
Health	HealthOffice	Health and nursing application
Parent Notification	BlackBoard Connect	Autodialer for parent notification
ChildCare Database	Access Database	Self-developed Microsoft Access database, used to track financial and contractual data for each student enrolled in the ChildCare program

College Admissions	Naviance	Naviance College admission software used by guidance, teachers, and students.
Student Activity Accounts	Access Database	HS and MS Student Activity Accounts
Transportation	PowerSchool	Custom screens/reports set-up to administer bus transportation.
Bus passes	Bus Card Creator	Bus Card Creator

The applications are all suitable for DPS current needs and are well managed by the Administrative Database Specialist. Replace "Administrative Database Specialist" with "Technology Team" DPS is also compliant with DESE School Interoperability (SIF)-based vertical reporting requirements. The DPS Technology Team is taking an important step toward improving data integration with the Information Integration Improvement Initiative (4i's) Project. DPS has many current databases (student information, special education (IEP), health, library, communication, lunch (POS,) career planning, professional development, courses, and personnel.) The goal of the 4i's project is to *provide consistent and accurate information through improved process and workflows for gathering and updating data and improve access to data through better reporting which will lead to improved efficiencies, more communication and better decision making. There will be tiered implementation based on an iterative process involving discovery, goal setting, implementation and assessment.*

Benchmarks/References:

- SETDA Transforming Data to Information in Service of Learning - **http://www.setda.org/priorities/interoperability/data-to-information/**
- Interoperability Overview - https://www.edsurge.com/interoperability

Recommendations/Projects:

- Review legal obligations of data storage; digitize paper records; and increase the use of electronic signatures
- **Document Management** - In collaboration with the Town, issue an RFP for a document management system. **(See Project #16.)**

Can the DPS Technology Team and IT infrastructure effectively support DPS today and into the future?

Now that we've addressed how DPS technologies support core and administrative functions, we will turn to a review of the Technology Team and the *nuts and bolts* of the technology infrastructure required to support a 21st century school district. The following areas are addressed in this section specific to the Technology Team and the hardware and software they manage:

- Planning and Alignment
- Governance, Processes and Standards

- Policies including Internet Safety and Personal Information Security
- Team Organization, Staffing and Performance
- Budget, Expenditures and Procurement
- Infrastructure - Network, Devices, Peripherals and Communications

In general, the DPS Technology Team is a mature, well-managed organization with dedicated, capable and hard-working staff who work collaboratively. While there is not sufficient data for an objective comparison, we believe based on our experience that the Dedham Public School system has instructional technology infrastructure and support that is a leader among school districts in the state, especially those of similar size. This section is therefore targeted less on gaps but instead on recommendations for DPS to build on its technological strengths and lead New England schools in demonstrating the innovation required to realize the benefits of blended learning.

TECHNOLOGY PLANNING AND ALIGNMENT

Brief Description

The DPS Technology Team has been developing three year strategic plans on a regular basis. The last strategic plan was completed in July 2013 to cover the years 2014-16. The Technology Team clearly understands the opportunity and obligation to support 21st century teaching and learning as evidenced by this selected excerpt for the Dedham Public Schools Technology Plan: *Guided by Dedham's Master Educational Plan developed by the School Building Rehabilitation Committee, it had been determined that functional school settings for today and tomorrow should be capable of supporting the following learning environment: A strong technological learning environment, current state and federal academic standards, active learning including laboratories, hands-on activities, community connections (real world applications), inquiry based (investigation, research), interdisciplinary, sustained projects and teacher-directed and student-directed instruction.*

The Dedham Public Schools Technology Plan is comprehensive and addresses the expected components. Now a new district-wide DPS Strategic Plan can provide the 21st century teaching and learning expectations required to ideally drive and inform the Technology Plan. We expect that this will be achieved with the new DPS strategic planning process under Superintendent Mike Welch.

Benchmarks/References:

Centric rated DPS as meeting or exceeding (M) all four of the technology planning-related DESE benchmark elements.

Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	**CENTRIC Rating**
Benchmark 1 -Commitment to a Clear Vision and Implementation Strategies	
The district's technology plan contains a clearly stated and reasonable set of goals and implementation strategies that align with the district-wide school improvement plan. The district is committed to achieving its vision by the end of the school year 2014-2015.	M

The district has a technology team with representatives from a variety of stakeholder groups, including school committee members, administrators, and teachers. The technology team has the full support of the school superintendent to implement the plan.	M
The district assesses the technology products and services that will be needed to improve teaching and learning.	M
The technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire.	M

Recommendations

- Update the current DPS Technology Plan as required to align it with the new DPS Strategic Plan and schedule both in the future on the same planning cycle.
- On an annual basis, create a brief Technology Action Plan with a list of updated projects and status.
- Repurpose the current DPS Technology Committee to focus more broadly on next generation learning.

TECHNOLOGY, GOVERNANCE, PROCESSES and STANDARDS

Brief Description and Recommendation

As confirmed by positive stakeholder input, the Technology Team is well run and managed. The Technology Department can build on its strengths by continuing explore and deploy as appropriate more structured and methodical management tools such as ITIL v3 (Information Technology Infrastructure Library) standards. Specifically, we recommend that DPS start by considering a streamlined version of ITIL known as ITL Lite. Centric also recommends that the DPS Technology Team work in collaboration with the Town IT Department to share experiences with ITIL Lite along the way. (For more information on ITIL Lite, refer to the Town of Dedham section of this report.)

TECHNOLOGY POLICIES INCLUDING INTERNET SAFETY AND PERSONAL INFORMATION SECURITY

Brief Description

DPS has developed and implemented a comprehensive set of technology related policies (available on the website) that have been approved by the Dedham School Committee including topics such as; Copyright, Electronic Devices, Employee Email, Internet Safety, Staff Acceptable Use, Student Acceptable Use, Use of Computer Facilities and web 2.0. DPS is recognized as a leader based on initiatives such as the Internet Safety Instructional Plan which is in compliance with the Protecting Children in the 21st Century Act. DPS also provides the i-Safe curriculum and CyberSmart activities as well as many other resources used by classroom teachers that cover topics including: Internet safety and security, online manners, cyberbullying, ethics, and research/information literacy. All students and

parents/guardians are required to review and sign the District's Acceptable Use Policy (AUP.) Finally, DPS filters access to the Internet with rules based on factors such as the age of the students. It is important to note that DPS provided devices also benefit from DPS filtering when students are away from school.

DPS is in compliance with the primary federal student data privacy regulation - The Family Educational Rights and Privacy Act (FERPA) which protects personally identifiable information (PII) from students' education records from unauthorized disclosure. FERPA defines education records as "records that are: (1) directly related to a student; and (2) maintained by an educational agency or institution or by a party acting for the agency or institution" (see 34 CFR § 99.3 definition of "education record"). However, while DPS has data privacy security provisions in place, it is not in full-compliance with the primary Massachusetts data privacy regulation, 201 CMR 17.00: STANDARDS FOR THE PROTECTION OF PERSONAL INFORMATION OF RESIDENTS OF THE COMMONWEALTH which implements the provisions of M.G.L. c. 93H. Centric reviewed DPS compliance with 201 CMR 17.00 and found them to be in full compliance with all of 34 key elements. DPS can close the gap considerably (15 elements) with the creation of a comprehensive, written information security program ("WISP".) Centric reached out to the Massachusetts Executive of Education and the Department of Elementary and Secondary Education to request if any school district has completed a WISP to date. No example was available. As part of the privacy effort, DPS should also require that all vendor or providers that have access to any student data comply with the Model Terms of Service to limit and protect student data. DPS, in conjunction with the Town of Dedham, should seek additional guidance and examples from the Commonwealth. DPS should also collaborate with The Education Collaborative (TEC) to engage the Department of Elementary and Secondary Education and the Executive Office of Education for examples and support. .

Benchmarks/References

Centric rated DPS as meeting or exceeding (M) three of the four safety, security, and data retention - related DESE benchmark elements.

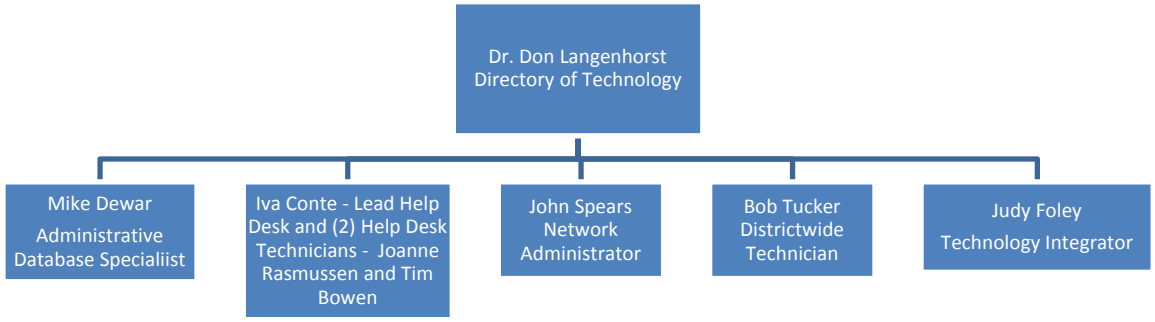
Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	**CENTRIC Rating**
Benchmark 6 - Safety, Security, and Data Retention	
The district has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.	M
The district educates teachers and students about appropriate online behavior. Topics include cyberbullying, potential risks related to social networking sites and chat rooms, and strategies for dealing with these issues.	M
The district has a plan to protect the security and confidentiality of personal information of its students and staff. *(NI note: DPS does well in protecting PI in practice but needs to develop a written information security program ("WISP") to be in full compliance with MA law - 201 CMR 17.00 in pursuant of M.G.L. c. 93H.)*	NI
The district complies with federal and state law, and local policies for archiving electronic communications produced by its staff and students. The district informs staff and students that any information distributed over the district or school network may be a public record.	M

- Detail on the Model Terms of Service is available from the Privacy Technical Assistance Center (PTAC) at the U.S. Department of Education
- DESE link to Model Terms of Service
- https://www.edsurge.com/guide/guide-to-student-*data-privacy*
- New York City Department of Education Social Media, Digital Literacy and Citizenship site

Recommended Project

- **Develop a Comprehensive Written Information Security Program (WISP)** that is applicable to all records containing personal information about a resident of the Commonwealth of Massachusetts ("PI".) **(See Project #7)**

TECHNOLOGY TEAM ORGANIZATION, STAFFING, AND



PERFORMANCE

Brief Description

The DPS Technology Team has seven employees with one additional Help Desk technician proposed in the 2016 budget. The Technology Director currently serves multiple roles including district leadership, supervision and evaluation of teaching staff: six library media specialists (K-12) and nine technology related teachers (computer, business, video and engineering) at the secondary schools. In addition the Technology Director's performance responsibilities include technology planner, technology liaison, funds seeker, cost manager, and technology equipment and software coordinator. This person directly oversees and guides the technology team which consists of the Administrative Database Specialist, Network Administrator, Help Desk, Technician and Technology Integrator. The Technology Director works closely

with administration and communicates with all staff about technology related needs. (see Appendix S2 for more details on roles and responsibilities)

Benchmarks/References:

Centric rated DPS as meeting or exceeding (M) four out of the six technology staffing-related DESE benchmark elements.

Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	**CENTRIC Rating**
Benchmark 2 - Technology Integration and Literacy	
Staffing	
The district has a district-level technology director/coordinator.	M
The district provides one FTE instructional technology specialist per 60-120 instructional staff to coach and model. *(NI note: DPS has over 230 classroom and special education teachers but only 1 Instructional Tech Specialist. This standard recommends 2-4.)*	NI
The district has staff specifically dedicated to data management and assessment.	M
Benchmark 4 - Accessibility of Technology	
Staffing	
The district provides staff or contracted services to ensure that its network is functioning at all times.	M
The district resolves technical problems within 24 hours, so that they do not cause major disruptions to curriculum delivery. The district provides clear information about how to access technical support, which can be provided in person or remotely.	M
The district provides at least one FTE person to support 400 computers. Technical support can be provided by dedicated staff or contracted services. *(NI note: DPS has over 2,500 computing devices (including iPads) as well as over 1,000 peripherals (SmartBoards, printers, cameras) Based on this standard, DPS should have 5-6 dedicated tech support staff but they only have 3.)*	NI

DESE Minimum IT Staffing Recommendations

Function	**DESE Minimum Recommendation**	**DPS Staffing**	**Difference**
Technology Director	1	1	0
Network Administrator	1	1	0
Data Manager	1	1	0
Technician	6	3	-3
Instructional Technology Specialist	3	1	-2
TOTALS	12	7	-5

Performance

Help Desk Support

The Help Desk staff and the entire Technology Team do a good job of supporting student and staff use of technology in the district despite being understaffed based on DESE recommended standards. The team works efficiently and collaboratively to address issues. Survey and focus group feedback confirms this finding as there were many compliments and not a single complaint about support among the hundreds that responded and were interviewed which is impressive..

DPS uses a help desk ticket tracking system called Technology Support System (TSS) from SmartEDU in Lowell, MA. The Help Desk team receives requests in three ways - face-to-face, email, or phone. Email is the preferred means and addresses are set up for elementary schools, Middle School, High School and Parents to send issues which are then triaged by the Help Desk team. If the problem can be resolved with a direct response, a help desk ticket is sometimes created in TSS. The Help Desk team has a strong customer orientation so they will respond to direct (face-to-face) requests in the field which they estimate accounts for about one-third of the total requests. Phone calls are also generally not recorded in TSS unless a follow-up visit is required. TSS is helpful in assigning and tracking tickets that require in person visits but it is not being used to capture and analyze all requests. The rationale behind this is well-intended as the focus is on solving problems in a timely basis more than tracking and analyzing.

TSS is a system used primarily to dispatch the issues or tickets, assign them to a technician, and evaluate the status of issues. TSS does not accurately track cycle time from start to finish of an issue, nor does it encompass all of the technology related problems solved within the schools. Due to time constraints, many emailed issues are solved before a ticket is generated. Since the TSS system is not used to track all activity, Centric is providing a very rough estimate of current help requests based on the following sources:

- Estimated (based on an actual sample) **emails** to prescribed accounts received during a sixty day period x 5: **3800** (approx. 10% increase over previous year)
- Estimated number of **emails** sent to Help Desk individuals: **700**
- Estimated number of **face-to-face** requests based on “33% of total” estimate: **1500- 2500**
- Estimated number of phone requests based on “10% of time” estimate: **400 - 600**
- TOTAL estimated help requests for 2014-15 school year: **6400 - 7600**
- TOTAL estimated TSS tickets for 2014-15: **1770** or ***at least less than one-half of all requests***

Since TSS is not used to capture all requests objectively, the above estimates are very rough but it is clear the majority of requests are not being captured in TSS. While the focus on customer service first is admirable, DPS should explore better use of TSS –or another system – that provides simple and mobile entry of help desk requests and responses.

Recommendations/Projects:

- The Technology Team will have eight staff next year. We recommend adding at least two (2) additional instructional technology resources and renaming the roles Blended Learning Coaches. We also recommend that the roles of subject-specific coaches be expanded to include elements of digital learning.

- Share administrative assistant support between district leadership to enable the Technology Team to focus more on strategic management and less on administrative tasks like scheduling and payment processing.
- Centric supports the following enhancement already in process: *Additional support by the district's Library Media Specialists will enhance the integration and coordination of current and future technology tools, including eBooks, access to online databases, LibGuides, as well as other district-supported technology tools. Building-based training by the library media specialists will be further explored lending timely location-based support for staff members to integrate technology into today's 21st century curriculum. In addition, outside experts will be brought in for new program initiatives when appropriate.*

Recommended Project **(See Appendix S1 for more details)**

- **Develop a more comprehensive help desk - ticket management process** - In combination with the Asset Tracking/Performance Management Project, research solutions and either select from Comm-Buys or issue an RFP to identify the best solution. **(see Project #8)**

BUDGET, EXPENDITURES, and PROCUREMENT

Brief Description

The School Department funds technology under the following line items in the operating budget: staffing, hardware, software, professional development, support and contractual services. Funding sources include a mix of local, state, federal and private resources. The Town of Dedham also provides capital expenditure funds. Private funding sources include: parent teacher organizations, Dedham Education Foundation, Dedham Education Partnership, and private grants and donations. DPS has also effectively used E-Rate funding for telecommunication, Internet access and other categories. The E-Rate model changed in July of 2014 with the E-rate Modernization Order which means that DPS will no longer receive funding in certain areas such as telecommunications but it opens up the potential for managed services to be reimbursed in the future.

The Dedham community has generously funded technology in Dedham Public Schools and the Technology Team has judiciously allocated the funding by targeting spending on improving teaching and learning inside and outside of the classroom.

Benchmarks

Centric rated DPS as meeting or exceeding (M) six of the seven budget-related DESE benchmark elements.

Massachusetts Department of Elementary and Secondary Education (DESE) - Local Technology Plan Guidelines - (School Year 2014-2015)	**CENTRIC Rating**
Benchmark 1 -Commitment to a Clear Vision and Implementation Strategies	
Budget	

The district recognizes that technology plays a critical role in achieving its goals. The district has a budget that will ensure the implementation of its long-range technology plan.	M
The budget includes staffing, infrastructure, hardware, software applications, professional development, support, and contracted services.	M
The district seeks funding for technology programs from federal, state, and private resources, as well as from academic departments that are supported by technology.	M
The district explores ways that technology can reduce costs and create efficiencies in other areas of the district budget.	M
For districts that plan to apply for E-rate reimbursement, the technology plan specifies how the district will pay for the non-discounted portion of their costs for the services procured through E-rate.	M
Evaluation	
The district routinely consults with technology staff before purchasing technologies items, to ensure that the items are appropriate, cost-effective, and sustainable.	M
The district's technology plan includes an evaluation process that enables it to monitor its progress in achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise. *(NI note: Projects are closely monitored but could benefit from a more formal project management process.)*	NI

INFRASTRUCTURE - Network, Devices, Peripherals and Communications

Brief Description

In addition to all of the academic and administrative software referenced earlier in this report, the DPS Technology Team manages a large and complex infrastructure including over 2,500 computers and iPads, over 1,000 various peripherals including over 100 interactive white boards (aka SmartBoards,) over 200 projectors, over 200 document cameras, and over 350 printers. To connect these device and the people that use them, the DPS manages 40 servers (primarily virtualized,) 76 switches and 260 wireless access points as well as network and device management software to keep things running smoothly. DPS has explored virtual applications and virtual desktops but have not found them to be cost effective to date.

To effectively manage the infrastructure, DPS utilizes a large of number of technical applications including but not limited to Active Directory, Group Policy, IIS, DNS, DHCP, BulkAdUsers, TeraCopy, Powershell, VMware Vsphere Client, VMware ESXi, EMC Networker, EMC Unisphere, FortiGate Unified Threat Management, FortiAnalyzer, LogMeIn Hamachi, Apache Directory Studio, LDAP Admin, RealVNC, Symantec Endpoint Protection, Altiris Deployment Solution, Insight, Lightspeed Systems Rocket, Stoneware, JAMF Casper, PRTG Network Monitoring, SpiceWorks, Wireshark, WinSCP, WinPcap, Tera Term, Putty, Notepad++, Solarwinds TFTP Server, Aruba Operating System Software, Airwave, PARCC Caching Server.

Network Infrastructure

The Dedham Public Schools worked collaboratively with the Town to develop a Municipal Fiber Optic WAN that connects town and school buildings in a star design with its centralized point of presence

located at the current Town Offices. DPS manages the router at Town Hall. The fiber backbone is provided by Comcast as part of their Franchise Agreement. The WAN includes 12 strand single mode fiber optic cables installed at seven schools; an eighth school owned building; and fourteen town locations. The WAN terminates to HP ProCurve modular switches. Each school has a local area network and virtual local area networks (VLANs) are utilized to segment and control traffic. (See Appendix T7 for network diagrams.)

DPS has contracted with Integrity by CELT for managed service that includes Internet Service Provider (ISP) services from Verizon (350 Mbps) and Comcast (100 Mbps) as well as security features. (DPS will increase the bandwidth this summer with two 500 Mbps connections from Verizon and two 150 Mbps connections from Comcast for total bandwidth of 1.3 Gbps) Loads are balanced with two firewalls. The DPS wide area network (WAN) backbone is 10Gbps Ethernet single mode fiber.

Network and server hardware includes: 70+ HP Procurve Switches; 2 Aruba Wireless Controllers; 260 Aruba Wireless Access Points; 2 Fortinet UTM; 3 HP Proliant DL360 G7 servers hosting VMware ESXi, which hosts DPS virtual servers; 35 Virtual servers using VMware, hosting both active and legacy system; 7 Physical servers 1 in each building hosting Active Directory, DHCP, and DNS; 1 EMC VNX5300 hosting the schools systems SAN; and 1 HP Server hosting Symantec BackupExec for retention of legacy backup(s.)

The State Educational Technology Directors Association (SETDA) has recommended and the Federal Communications Commission (FCC) has adopted these recommendations as bandwidth targets for K-12 schools:

Broadband Access for Teaching, Learning and School Operations	**2014-15 School Year Target**	**2017-18 School Year Target**
An external Internet connection to the Internet Service Provider (ISP)	At least 100 Mbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff
Internal wide area network (WAN) connections from the district to each school and among schools within the district	At least 1 Gbps per 1,000 students/staff	At least 10 Gbps per 1,000 students/staff

http://digitallearning.setda.org/broadband/#!/broadband-to-the-school

DPS currently exceeds the recommended bandwidth and is well positioned to scale as further demand warrants. All Internet traffic is filtered as required by the Children's Internet Protection Act (CIPA) to try to prevent access to inappropriate material but no filter is perfect so active staff monitoring is also encouraged.

Wi-Fi

Dedham Public Schools sufficiently supports safe, secure, and reliable wireless access which is critical to supporting the increasingly mobile nature of education technology. All Dedham schools have secured wireless access with at least one wireless access point in each classroomDPS has also deployed a wireless network access controller which supports better bandwidth management and security in all schools.

Video

DPS currently uses the Video Furnace system which is a client/server solution that delivers live broadcast and on demand video services to any network connected device. Video Furnace is over eight years old and is out of warranty. Video creation, access, distribution, integration and management has changed dramatically over the past few years with the emergence of You Tube; subscription and open education resources like Discovery, Kahn Academy and Learn Zillion; and cloud-based services. Also, Cable TV is no longer a preferred means of accessing video for parents or students. (A recent survey of DPS parents indicated that of 338 respondents, only 9 indicated the Dedham TV channels are their most preferred method to access information and 81% indicated they are either the least preferred of never used.) It is clear that the Internet has become the preferred way to access information and videos which future planning and investments should reflect.

Network Security, Back-up and Disaster Recovery

DPS currently manages network security including visual inspection, network monitoring, and locking down of ports. DPS recently installed a backup generator for the central data center located at the High School. DPS utilizes a centralized, disk-based back-up system. All servers are backed-up during off hours and the backups are transferred to tape for storage at an off-site location. DPS utilizes tiered backup of older data and data de-duplication systems. Longer-term, DPS will be best served by cloud-based applications that can utilize more sophisticated security, back-up and redundancy features but this will likely be a multi-year migration as more K-12 specific applications move to software as a service and cloud-hosting becomes more affordable. Elements of the DPS back-up system include: EMC Networker; EMC Data Domain; Backup Exec 2012 (Legacy Backup); Data Domain (Legacy Backup); HP Tape Libraries (Legacy Backup); and 1 HP Server hosting Symantec BackupExec for retention of legacy backup(s).

Computing Devices

With the support of the Dedham citizens, DPS has been a leader in Massachusetts in providing students with access to computers in labs, classrooms, and with dedicated mobile devices called a 1:1 strategy. This effort started in 2012 with the deployment of Netbooks in the High School and has transitioned so that every High School student now has a district-provided iPad tablet. DPS is focused on providing students with the 1:1 access that they require in school and at home. DPS pays most of the cost and asks parents to contribute a technology fee if possible that supports coverage of warranty and maintenance.

With the support of the Town Capital Expenditure and Finance Committees, the schools have been able to refresh desktops every five years. Industry standard recommendation is replacement every 3 years but DPS has been able to stretch it effectively to 5 years through effective maintenance and support.

Peripherals and Environments

Interactive whiteboards (IWB's or SmartBoards) have helped teachers to digitize and deliver instruction more effectively and improve student engagement. The majority of DPS elementary classrooms have SmartBoards. DPS also provides many classrooms with printers. There is currently not a replacement

cycle for printers, projectors, or interactive whiteboards. DPS uses GA Blanco for managed print services.

Communications Infrastructure

DPS, in coordination with the Town of Dedham, utilizes a Voice over IP (VoIP) phone system (Avaya IP Office) at Dedham High School which is managed by the Facilities Department. There has been additional integration with non-traditional networked technologies such as heating, monitoring, and video which require the Technology Team to work closely with Facilities. Based on collaboration with the Town and leadership from the DPS Technology Team, Dedham was able to save over $200,000 off of an initial quote on the VOIP phone system. Like the wide area network, Dedham can benefit from more proactive collaboration between Town and Schools departments on all similar initiatives for mutual benefit.

Benchmarks/Recommendations:

Centric rated DPS as meeting or exceeding (M) twelve out of the thirteen technology access-related DESE benchmark elements.

Benchmark 4 - Accessibility of Technology	
Hardware Access	
By 2014-2015, the district has an average ratio of one high-capacity, Internet-connected computer for each student. (The Department will work with stakeholders on a regular basis to review and define high-capacity computers.)	M
The district provides students with emerging technologies appropriate to their grade level.	M
The district maximizes access to the general education curriculum for all students, including students with disabilities, using universal design principles and assistive technology devices.	M
The district has procurement policies for information and instructional technologies that ensure usability, equivalent access, interoperability and SIF compliance. *(NI note: DPS generally meets this but needs improvement in the area of requiring SIF and or other interoperability compliance.)*	NI
The district provides technology-rich classrooms, with access to devices such as digital projectors, electronic whiteboards, and student response systems.	M
The district has established a computer replacement cycle of five years or less.	M
Internet Access	
The district provides connectivity to the Internet for all computers in all classrooms in all schools, including wireless connectivity.	M
The district provides an external Internet connection to the Internet Service Provider (ISP) of 100 Mbps per 1,000 students/staff.	M
The district provides bandwidth of at least 10/100/1 Gb to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 Gb.	M
Networking (LAN/WAN)	
The district provides internal wide area network (WAN) connections from the district to each school between schools of at least 1 Gbps per 1,000 students/staff.	M

The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing, either internally or through contracted services.	M
Access to the Internet Outside the School Day	
The district provides access to its computer labs before and after school to ensure that students and staff have adequate access to the Internet outside of the school day.	M
The district disseminates a list of up-to-date list of places where students and staff can access the Internet after school hours.	M

Recommendations/Projects:

- DPS already uses several key cloud-based or Software-as-a-Service (SaaS) applications including the PowerSchool student information system. DPS should seek to migrate applications to SaaS or cloud-hosted as more best-in-class applications become available and more affordable.
- To support the increasing expectations to use any device to access learning, DPS should continue to select platform agnostic resources that are available regardless of the device or operating system (i.e., Windows, iOS, Android.) Applications such as Google Apps and Evernote are already available as cross-platform, browser-based resources.
- DPS already uses Google Apps for Education and should accelerate the transition – especially for transitioning from the DPS hosted Z-drive to Google Drive as a primary repository. (As in several cases, DPS was ahead of its time in providing the Z drive that was accessible remotely as well as Blackboard Engage to share resources. DPS must not let the past success get in the way or continued migration to the best available solutions.)
- The Technology team still must spend too much valuable time doing hands-on maintenance and re-imaging of devices. Chromebooks should enable improved remote management and devices that cannot be managed remotely within 2 years should be phased out.

Recommended Projects **(See Appendix S1 for more details)**

- **Improve Asset and Performance Management of all Hardware and Software** - Set a goal of having automated tracking and performing of all key technology hardware and software assets by 2017. **(see Project #9)**
- **Rethink printer and copier strategy** - Engage one or more reliable firms who understand K-12 education to provide a no-cost assessment of print/copier usage and recommend a new program that will reduce consumption and costs. **(see Project #10)**
- **Network redundancy and reliability** (See recommended joint town/school projects Create Core Network Redundancy and Fiber Legs to Turn Hub-spoke Topology into a Mesh) - **(see Project #12)**
- **VMWare Upgrade / SAN Storage Hardware Refresh** - Implement the VMWare Upgrade / SAN Storage Hardware Refresh but also consider how much can be migrated to the cloud. **(see Project #13)**
- **Enable Internet access for all students throughout Dedham** - Start by insuring that all eligible families are aware off the Internet Essentials program from Comcast that provides home Internet service for $9.95 a month. Look to further support families that cannot afford that service. In select cases of very high need (e.g., homeless, highly-mobile,) provide students with MiFi cards.

Also, continue to explore opportunities to provide free or low-cost wireless access to students in Dedham. **(see Project # 17)**

- **Backup System /Disaster Recovery Hardware Update** - Implement the Backup System /Disaster Recovery Hardware Update but also consider the benefits of migrating to the cloud. **(see Project # 24)**
- **Wireless Update – all schools -** It is reasonable to assume that key hardware and software elements required to provide sufficient, secure and reliable mobile access will need to be replaced or upgraded by 2019. **(see Project # 25)**

APPENDICES

T1 - List of Interviewees

Interviewees	Department
Amy Madsen	Town Focus Group
Bill Ralph	Finance
Brian Keaney	Town Focus Group
Carol Coppola	Finance
Catherine Cardinale	Health
Catherine Kiah	Arlington Library
Charlotte Canelli	Norwood Library
Chris Pohl	IT Consultant
Cynthia O'Connell	Conservation
Denise Moroney	Facilities
Dennis Guilfoyle	Town Focus Group
Donald Beltis	Fire Dept
Erin Perron	Endicott Estate
Gayle Capone	Building
Gene Lichtman	Town Focus Group
Human Resources	Miriam Johnson
James Kern	Town Manager
Jane Lepardo	Treasurer/Collectors
Jason Mammone	DPW/Engineering
Jessica Porter	Town Focus Group
Joseph Flanagan	DPW
Karen Camerano	Police Dept
Karen O'Connell	Economic Development
Kelly Ahrens	IT Director E. Providence RI
Kenneth Cimeno	Building
Kenneth Ellis	Police Dispatch
Leon Scott	DPW/GIS
Lisa Bazinet	Conservation
Mary Ann Tricarico	Main Library
Mary Gilbert	Town Focus Group
Michael D'Entremont	Police Dept
Michael Podolski	Town Focus Group
Paul J. Puzzanghera	IT Director, Andover MA
Paul Munchbach	Town Clerk
Peter Cinfo	IT Nashua Police Depart
Peter Zahka	Town Focus Group

Richard Henderson	Assessors
Richard McCarthy	Planning
Robert Stanley	Parks and Rec
Roger Lazdowsky	Facilities
Russ Poole	Town Focus Group
Sarah MacDonald	Town Focus Group
Steven Hooke	MCSA State 911 Rep.
Susan Munchbach	Payroll
Susan Shaw	Finance
Veronica Barnes	IT
Virginia LeClair	Health
William Aitken	Veterans
William Spillane	Fire Dept
Zeray Assefa	Network and System Manager, Brookline Public Schools and Town
Bob Cunha	Director of Technology, Burlington Public Schools
Dr. William Kendall	Director of Technology, Braintree Public Schools
Leo Brehm	Director of ITD, Newton Public Schools
IT Staff & Directors	All Benchmarked Communities

T2 Focus Group Notes

Town of Dedham – External Stakeholder Focus Group Meeting – 11/25/2014 5:30p – 7:30p

Notes & Observations:

1. Devices used to access the internet – high use of smartphones for simple tasks, for most internet interactions they use laptops and PCs (largest cohort is PCs). However they felt the objective should be the ability to access core interactions with Town of Dedham via a smartphone.
2. Predominant means of direct communication with Town
    a. Timely responses needed
    b. Name tags for Town Hall Staff
    c. Most interactions via email
    d. Phone calls are usually when info is not found on web site
    e. Want to interact without having to email, phone call, or visit in person
    f. Want ability to subscribe to events and issues and be alerted when they are scheduled, discussed, etc.
3. Primary Sources of info about Town Issues in order of utility
    a. Town of Dedham website
    b. Limited facebook
    c. Want to see use of Twitter for news and announcements
    d. Local TV is considered very low quality and of little use in informing residents
    e. Dedham Times – weekly is read but not as a primary source of info
4. Interactions they would have preferred to do online – property review, on demand viewing of ongoing meetings (Gov TV), on demand viewing of recorded meetings (GOV TV), applying, tracking and paying for permits online, subscription to news, report a problem, request DPW activity (garbage, clippings, snow removal), submit requests directly to BOS.
    a. See Click Fix is still out there and should be removed if a new tool is added, and there must be a marketing effort around it
    b. Want to be able to interact with Town on Community Development Initiatives (something also recommended by Planning Dir and Econ Dev Director), via the web.
5. Invoice Cloud payment use – some were not aware, not greatly used, didn't always like the addition of a convenience fee, would like a better mechanism for payments more integrated to online actions (like licenses and permits, etc.).
6. On-premise debit/credit payments at the counter – unanimous support for debit/credit at the counter, for identified items (tax, permits & licenses, Fees, Library) but also for Police Reports & Fire payments.
7. Frequency of using Town of Dedham website – most view it weekly, some daily, only one new resident had visited monthly. Much higher frequency than Centric expected.
8. Most had experienced trouble finding info and services. Search was considered useless. Updates to websites infrequent and inconsistent. Feel a webmaster is definitely needed to ensure that the website becomes the tool it should be.
9. Reasons for visiting website –

   a. most visits to get Board agendas and meeting dates, latest news & events, and in a limited way to find some documents and forms.
   b. Interestingly GIS was not in high use – stakeholders felt it was not intuitive and they forget how to use it between uses (although they gave high marks to Leon Scott for helping when requested). Not entirely sure how GIS would be useful to them. They saw GIS as most useful in meetings when members used it for planning & zoning.
   c. Relevant current items like job postings, purchasing bid opportunities, etc. not looked at because they are not updated frequently enough to be sure they are still active
10. Opinion & Improvements in Town of Dedham website –
   a. Not user-friendly or intuitive
   b. Organized poorly
   c. Search failure
   d. They embrace the idea of ROLE-BASED website sections (Resident, New Resident, School Parent, Business owner, Prospective Business owner, etc.). There was agreement that the roles needed to be fleshed out by stakeholders, and this group may agree to help if asked. Should establish a Website Committee of external & internal stakeholders.
   e. Were surprised that we have no metrics on the site. Jessica Porter uses GetFused and gets a weekly report of activity.
11. Overall rating of website – mostly poor, one fair
12. Additional website features suggested
   a. Town Meeting section with info about members, contacts, dates, etc.
   b. More updated content
   c. Warrant books online

13. Embraced the idea of a Citizen Services role, who could help direct and expedite answers, as well as ensure that website is updated.

14. Was not able to get any real suggestions about technology changes outside Town Hall.

   a. Agreed that Police and Fire should be closely integrated
   b. Agreed that Police should have access to all cameras in Town. Upset to hear it did not.
   c. Some interest in ideas like camera based traffic signaling, DPW AVL, etc. but felt those are post-3 year objectives.
   d. Very concerned that Centric's report clearly identify changes needed to be incorporated into the new Town Hall building design.

15. All participants agreed that the recommendations of the study should be seriously considered and funded ASAP as a big-bang approach rather than incrementally where it

would fall apart like past studies. All participants agreed that they would act as champions of the report when it was released.

T3 External Stakeholders Survey Results

Town of Dedham - Customer Tech…

Summary | Design Survey | Collect Responses | Analyze Results

CURRENT VIEW

+ FILTER | + COMPARE | + SHOW

No rules applied

Rules allow you to **FILTER**, **COMPARE** and **SHOW** results to see trends and patterns. Learn more »

SAVED VIEWS (1)

Original View (No rules applied)

+ Save as...

EXPORTS

SHARED DATA

No shared data

Sharing allows you to share your survey results with others. You can share all data, a saved view, or a single question summary. Learn more »

Share All

RESPONDENTS: 43 of 43 Export All Share All

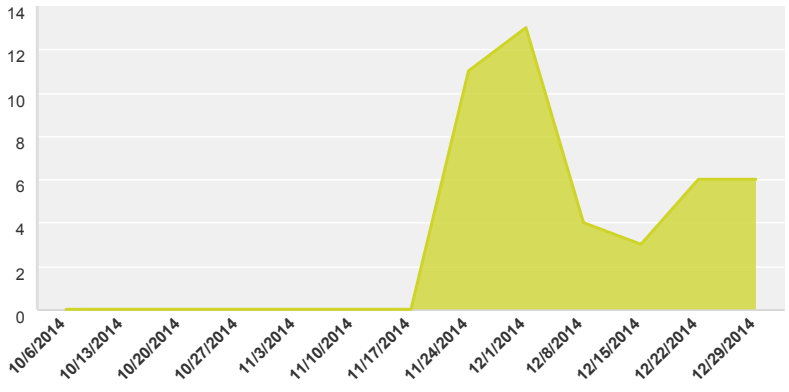
Question Summaries | **Data Trends** | Individual Responses

All Pages

Responses (by week)

Chart Type | Trend by... | Zoom

First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Weekly (Starting on the date)

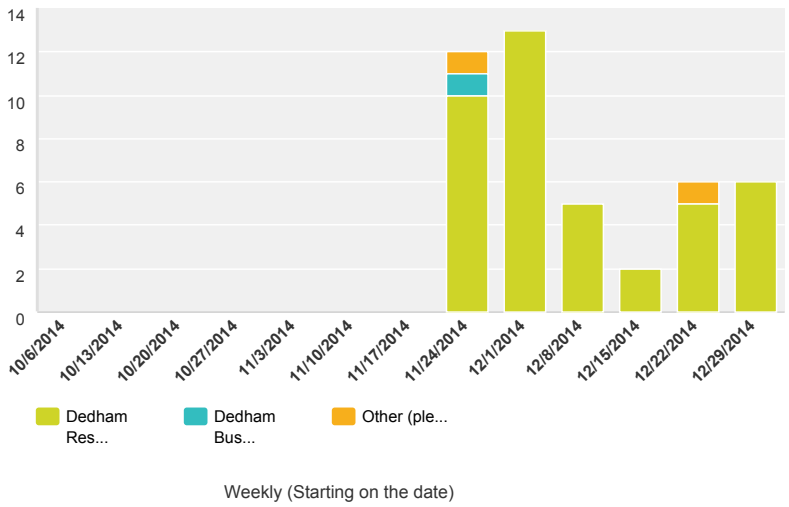
PAGE 1: Demographics

Q1 (by week)

Chart Type | Display Options | Trend by... | Zoom

Please indicate if you are responding as a:

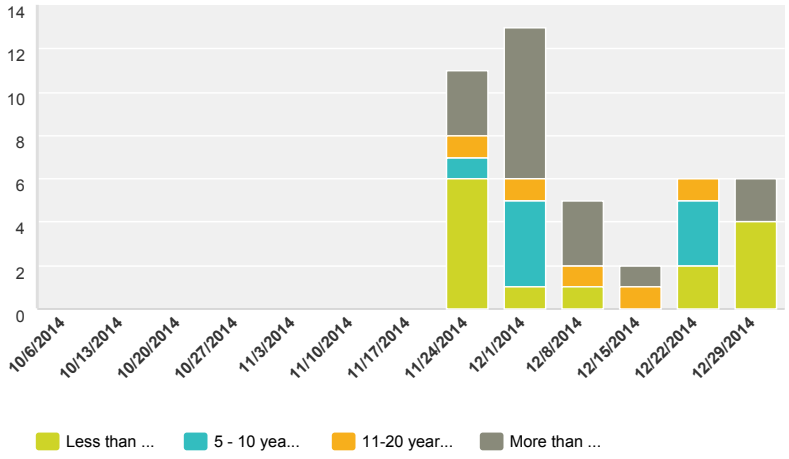
Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q2 (by week) Chart Type | Display Options | Trend by... | Zoom

Approximately how many years have you lived and/or worked in Dedham?

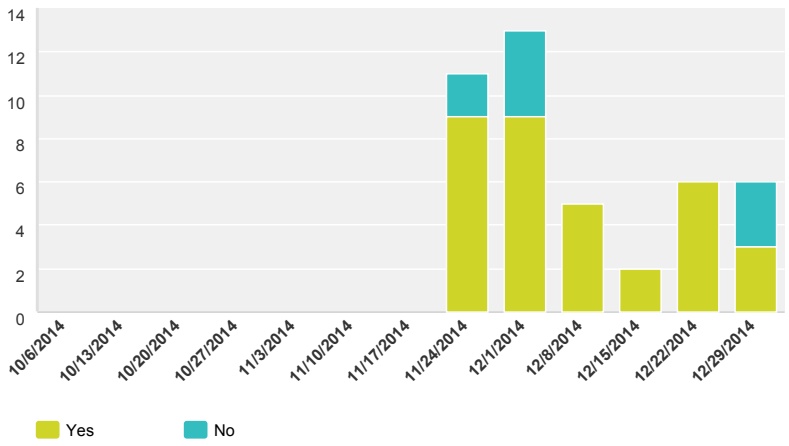
Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q3 (by week) Chart Type | Display Options | Trend by... | Zoom

Have you used technology to interact with the Town and its staff in the past?

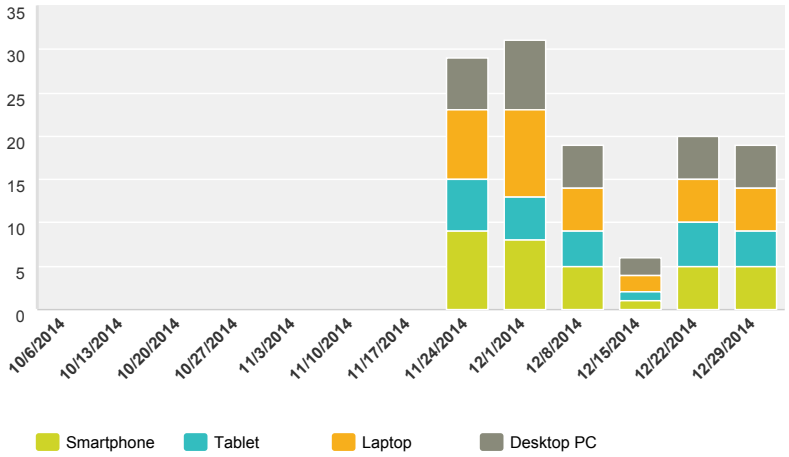
Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q4 (by week) Chart Type | Display Options | Trend by... | Zoom

Please select one or more devices you use to access the Internet

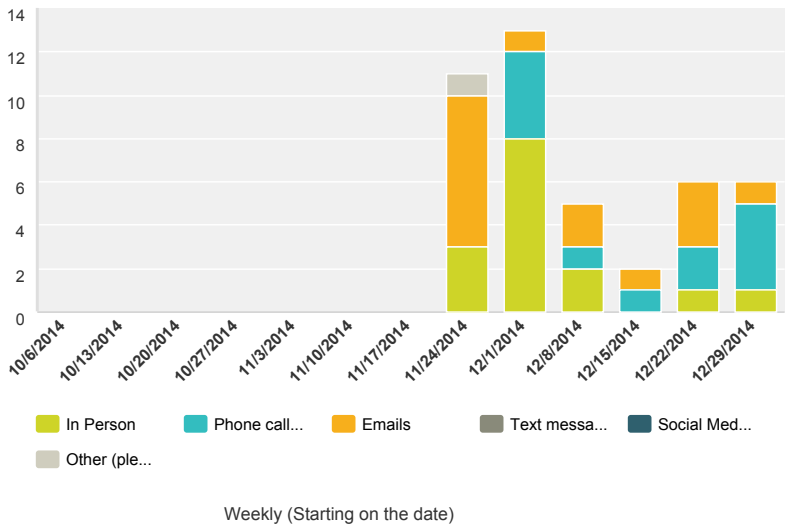
Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q5 (by week) Chart Type | Display Options | Trend by... | Zoom

Please indicate your predominant means of direct communication with the Town of Dedham

Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



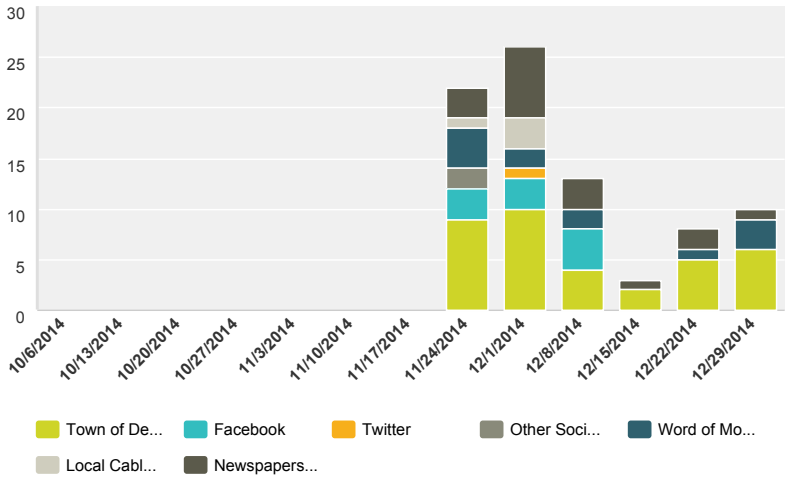
Weekly (Starting on the date)

Q6 (by week)

Chart Type | Display Options | Trend by... | Zoom

Which of the following are your primary sources of information about Town issues, services, events, and emergencies (check all that apply)

Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Weekly (Starting on the date)

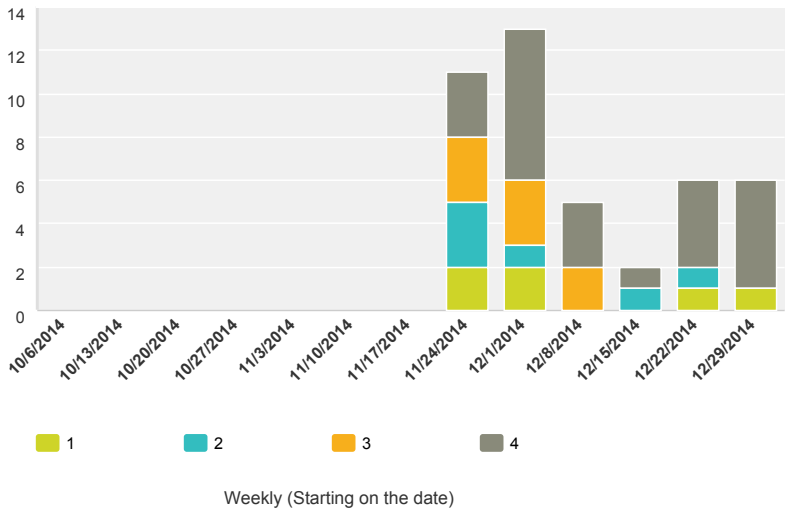
Q7 (by week)

Chart Type | Display Options | Trend by... | Zoom

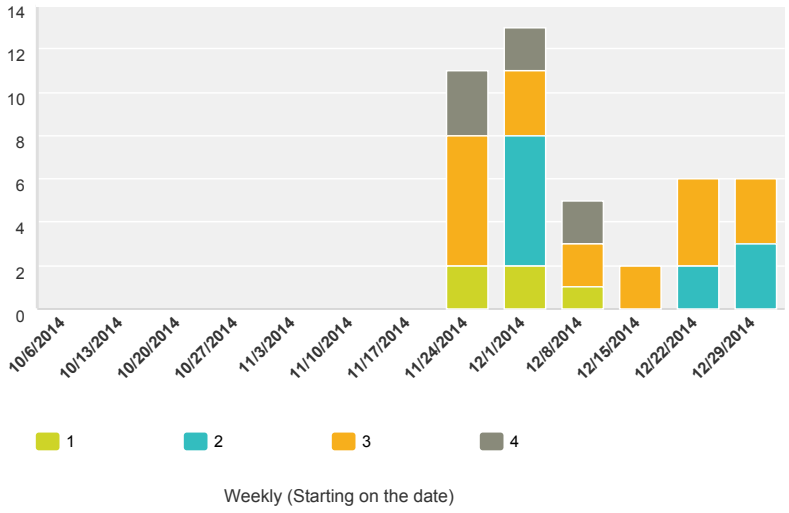
Please rank the most frequent to least frequent method you use to interact with other technology service providers (e.g. banks, retail, news, etc.)

Answered: 43 Skipped: 0 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014

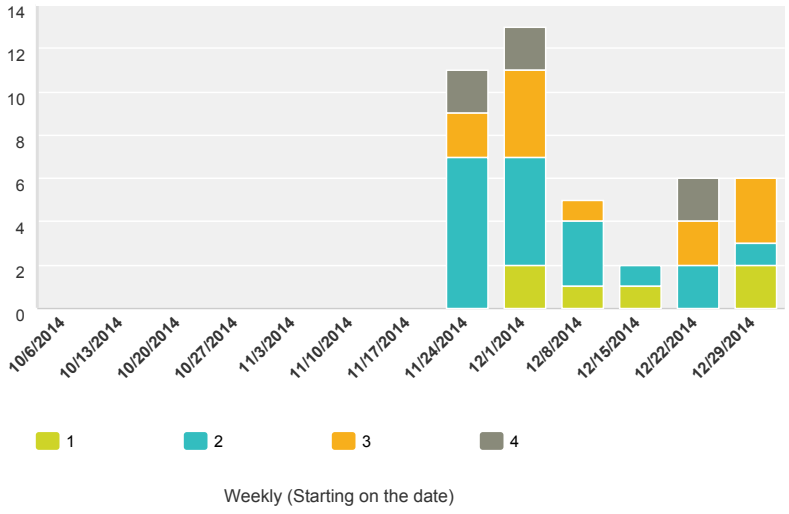
In Person

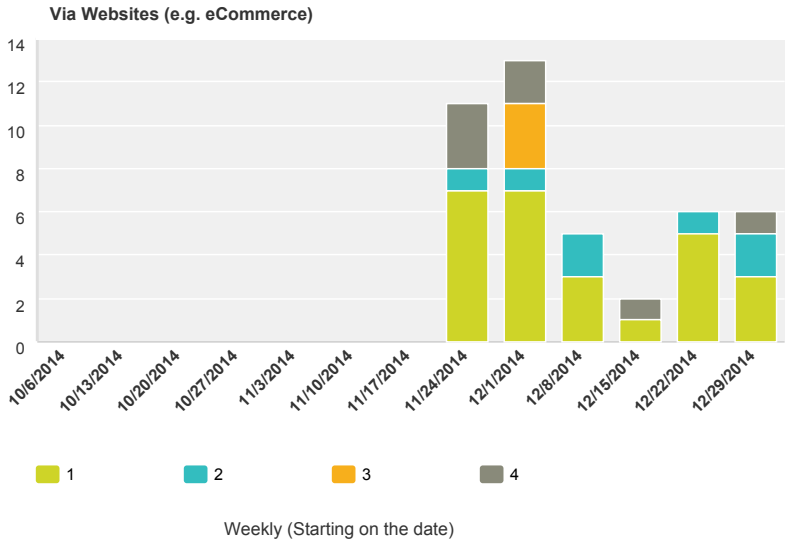


On the Telephone



Via Email





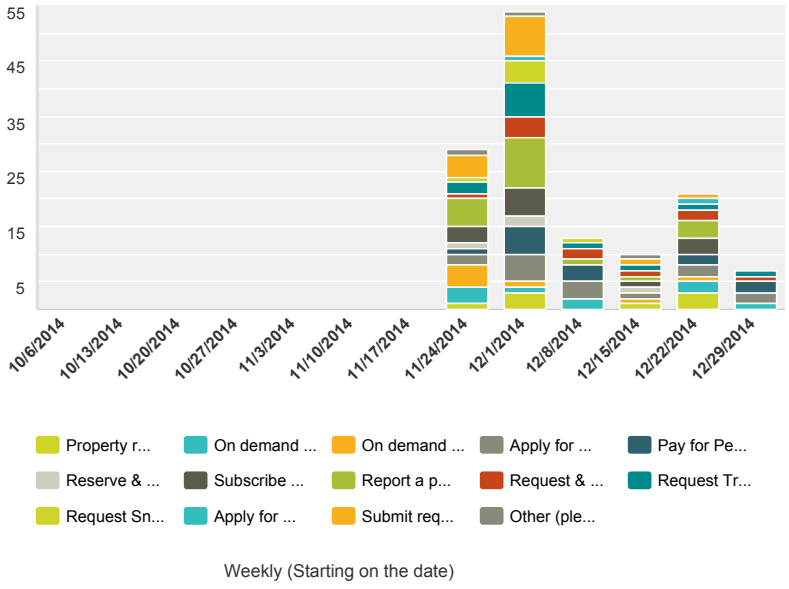
PAGE 2: Technology Use / Needs at Town of Dedham

Q8 (by week)

Chart Type | Display Options | Trend by... | Zoom

Please indicate any services or information from the Town of Dedham that you had to conduct in-person, via mail, or over the phone that you would rather have done online.

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q9

Please list the 3 most important digital services the Town of Dedham should provide

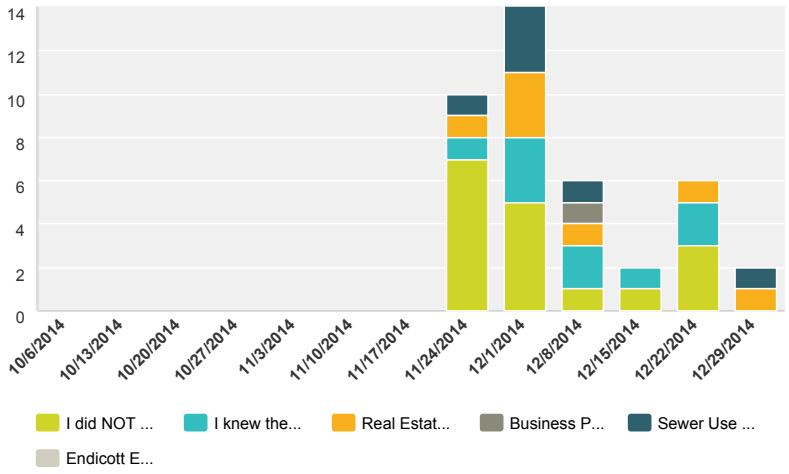
Page 107

Data Trends do not apply to this question

Q10 (by week) Chart Type | Display Options | Trend by... | Zoom

Have you used the Town of Dedham's Invoice Cloud online payments site? Select all which apply to you.

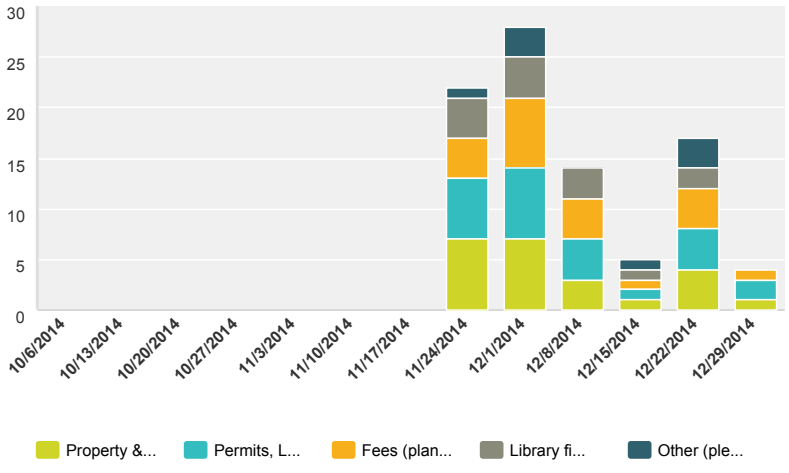
Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q11 (by week) Chart Type | Display Options | Trend by... | Zoom

Which on-premise Town service would you like to see accept credit/debit payments at the counter?

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014

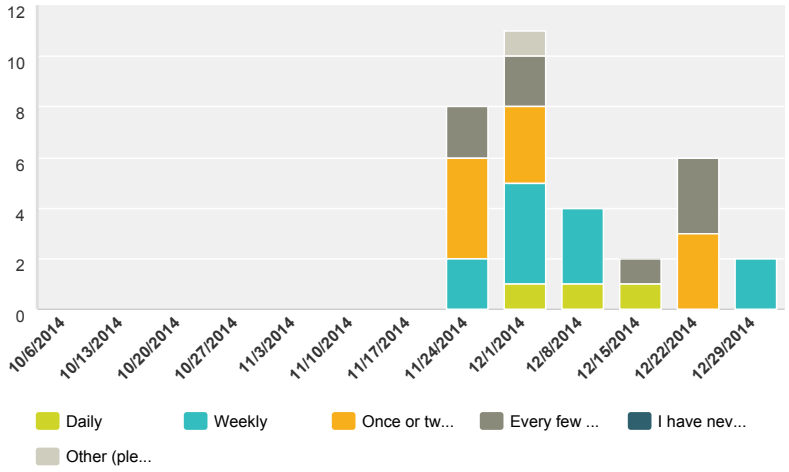


PAGE 3: Town of Dedham Website

Q12 (by week) Chart Type | Display Options | Trend by... | Zoom

How often do you visit the Town of Dedham website?

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Weekly (Starting on the date)

Q13

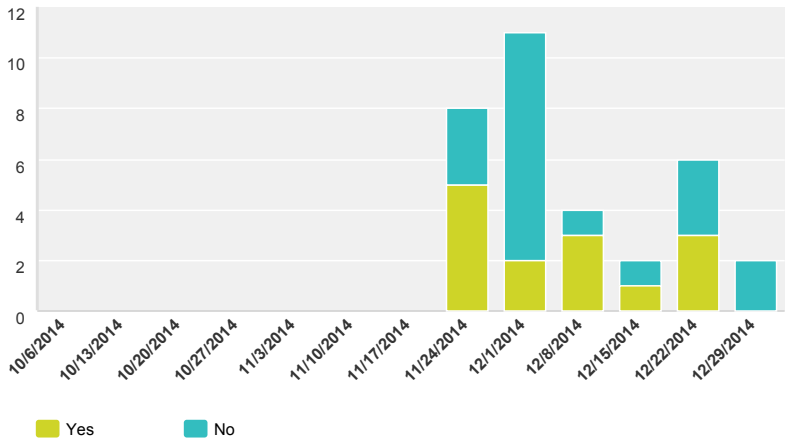
Please explain why you visit the website as often as you do

Data Trends do not apply to this question

Q14 (by week) Chart Type | Display Options | Trend by... | Zoom

Did you look for a particular service or informationn on the website but were unable to find it?

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Weekly (Starting on the date)

Q15

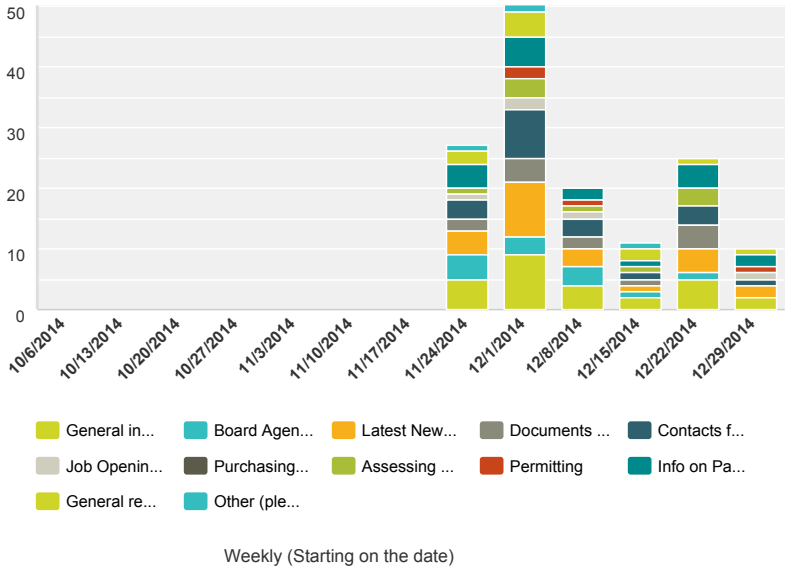
What were you looking for?

Data Trends do not apply to this question

Q16 (by week) Chart Type | Display Options | Trend by... | Zoom

What are your main reasons for visiting the Town of Dedham website? (Select all that apply)

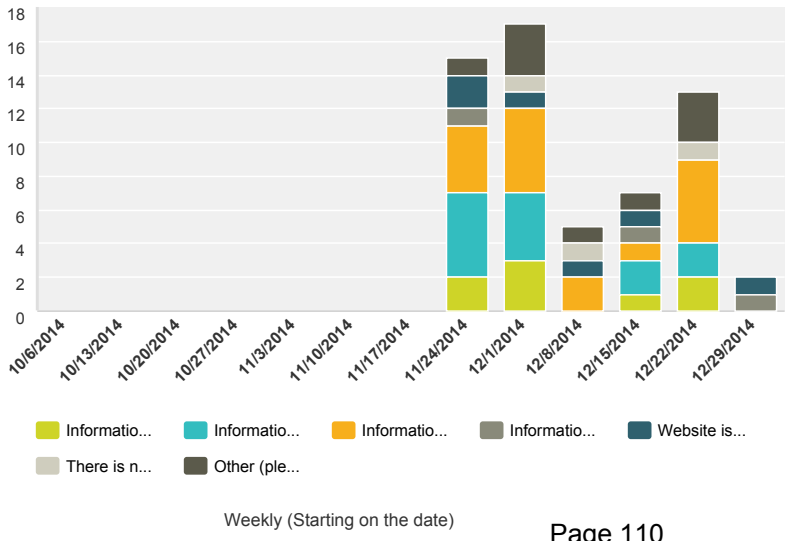
Answered: 30 Skipped: 13 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



Q17 (by week) Chart Type | Display Options | Trend by... | Zoom

What could be improved about the Town of Dedham website? (Select all that apply)

Answered: 30 Skipped: 13 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014

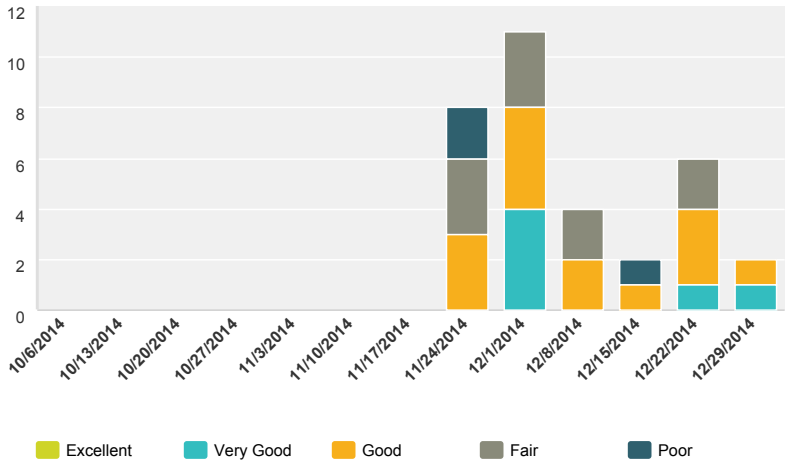


Q18 (by week)

Chart Type | Display Options | Trend by... | Zoom

How would you rate the Town of Dedham website overall?

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014

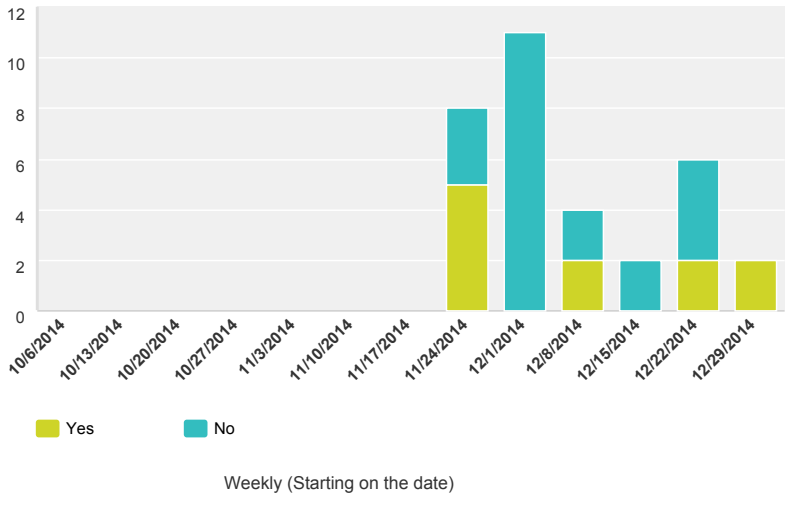


Q19 (by week)

Chart Type | Display Options | Trend by... | Zoom

Are there additional features or online services you would like us to include on the web site?

Answered: 33 Skipped: 10 First: 11/25/2014 Zoom: 10/6/2014 to 12/29/2014



PAGE 4: SurveyMonkey Audience

Q20

Chart Type | Display Options | Trend by... | Zoom

Gender

No responses for this question

Q21 Chart Type | Display Options | Trend by... | Zoom

Age

No responses for this question

Q22 Chart Type | Display Options | Trend by... | Zoom

Household Income

No responses for this question

Q23 Chart Type | Display Options | Trend by... | Zoom

Education

No responses for this question

Q24 Chart Type | Display Options | Trend by... | Zoom

Location (Census Region)

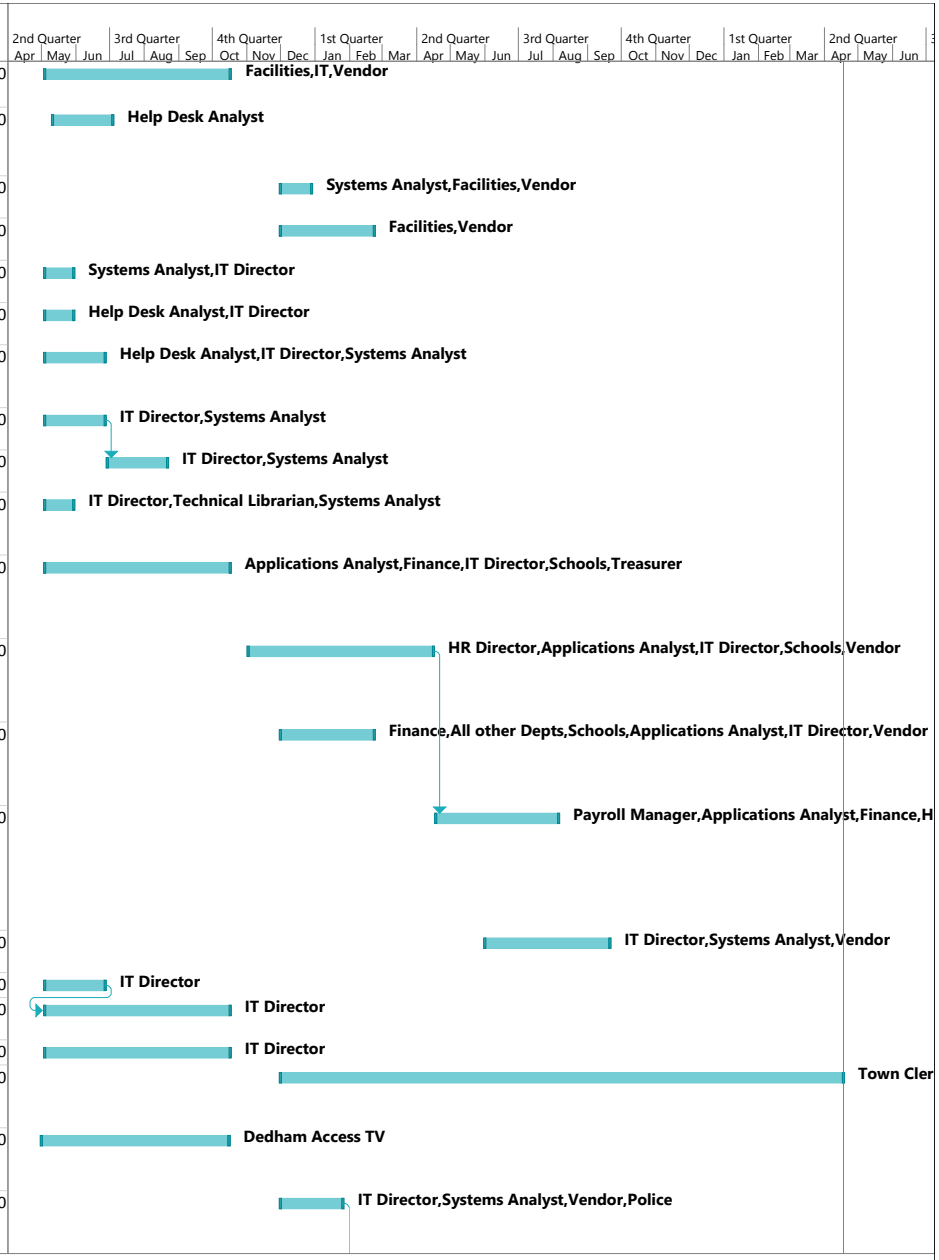
No responses for this question

T4 Community Benchmarking results

#NAME?			BENCHMARK TOWNS and SCHOOLS										
Criterion	Source	Year	Canton	Danvers	Norwood	Reading	Stoughton	Braintree	Dedham	Natick	Burlington	Revere	Framingham
Population			22,221	27,483	28,951	25,327	28,106	36,727	25,299	35,214	25,463	53,756	70,441
Community Sq Miles			18.9	13.3	10.5	9.9	16	13.9	10.5	15.1	11.8	5.9	25.1
Budget Approval			Open Town Mtg	Board of Selectmen	Board of Selectmen	Town Meeting	BOS w/Town Mgr - Town	Town Council	Town Meeting	Rep. Town Mtg.	Rep. Town Mtg.		Rep. Town Mtg. w/BOS
Town Budget			$ 96,455,522	$ 112,068,320	$ 173,150,239	$ 97,184,244	$ 102,738,649	$ 135,546,780	$ 106,206,724	$ 147,026,413	$ 134,582,081	$ 173,447,597	$ 292,322,083
Town General Fund Spending for Education	DOR	2013	$ 31,867,146	$ 36,092,219	$ 37,042,810	$ 37,494,977	$ 37,765,278	$ 53,453,494	$ 35,820,222	$ 48,241,142	$ 47,642,534		
Total District Expenditures	DESE	2012-13	$ 45,015,349	$ 49,223,309	$ 50,178,385	$ 50,893,556	$ 47,819,794	$ 69,909,007	$ 47,721,606				
Expenditure Per Pupil	DESE	2012-13	$ 13,739	$ 13,232	$ 13,985	$ 11,281	$ 12,394	$ 12,215	$ 16,434				
Tax Rate			12.82	14.91	11.47	14.70	15.13	11.07	15.87	13.82	11.35	14.80	17.82
Clerks Office			Tracy Kenney 781-821-5013	Tax collector Michelle HR	Assessor								
# of Employees Town			300 F/T	820??	309 F/T 89 P/T		236		313				
Total School FTE Count - 2013-14	DESE	2013-14	421.8	457.3	462.7	528.7	447.5	683.7	423.8				
IT Dept Office			Louis Jutras 781-575-6607 ljutras@town.canton.ma.us	Diane Norris (Assistant Town Manager) 978-777-0001 x3003 Sec x3002 dnorris@mail.danvers-ma.org	Mark Redlich (Computer Director) or Sandy Vokes (Computer Assistant)			School ***Director*** of Math & Tech William Kendall	1:1 School	1:1 School	1:1 School 2014-2015 School and Town IT will consolidate under a single director and MOUs.	1:1 School	1:1 School
# of IT Staff Town			2 FTE w/ 10 hr P/T Director/Manager	3 FTE not including Admin Asst Director/Manager	4 FTE w/ 4 Consulting ad-hoc Director	4 FTE w/GIS Director	7 FTE Combined IT 4 Techs, 1 DBA, 1 Dep. Director, 1 Director	BELD outsourced - $303,050 per yr.	1.35 FTE (1 FTE Manager & 16 hr PT)	4 FTE Director	3 FTE w/Director (1) Critical Systems/Applications Administrator; (1) System/Application Administrator; (1) Network/Repair Technician	3 FTE Manager	7 FTE Director
# of IT Staff School			5 FT	2 FT	2 F/T		Same	Consultants	7 FTE				
Town IT Budget			$361,687.00	$489,021.00	$407,000.00	$654,000.00		$407,000.00	$866,107.00	$1,078,864.00	$374,969.00	$903,801.00	$1,322,519.00
Website			Civicplus	GOV.office	Looking for new		FirstClass			Civicplus			Civicplus
ERP (integrated finance)			Munis		AMC	Munis	Munis			Munis			Munis
Tax/utility/etc, Collections			Munis		VAX some on VAX		Munis						
Assessing			PSK		Vision		Patriot						
License & Permitting			ViewPermit		AMC		YES						
Document Management			Laserfiiche		Not Yet		NO						

T5 – Dedham Projects Projected Timeline

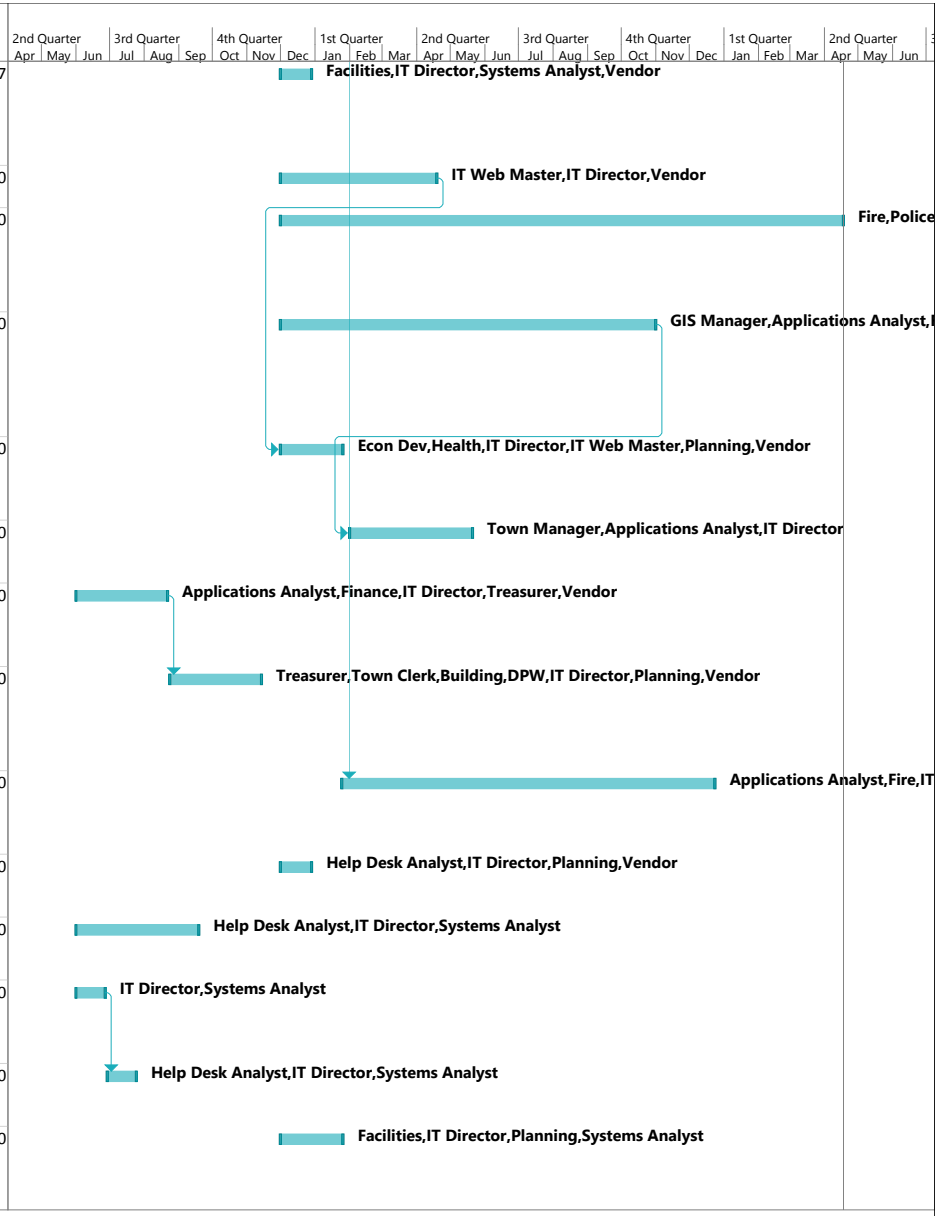
ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Cost
1	Video Management System for Police & Schools	6 mons	Mon 5/4/15	Fri 10/16/15		Facilities,IT,Vendor	$38,000.00
2	Create Emergency Operations Center support technology	2 mons	Mon 5/11/15	Fri 7/3/15		Help Desk Analyst	$10,700.00
3	Generator Controls in Town Hall	1 mon	Tue 12/1/15	Mon 12/28/15		Systems Analyst,Facilities,Vendor	$12,000.00
4	Generator Wiring in Town Shelters	3 mons	Tue 12/1/15	Mon 2/22/16		Facilities,Vendor	$9,000.00
5	Provide legally mandated Police data security	1 mon	Mon 5/4/15	Fri 5/29/15		Systems Analyst,IT Director	$4,000.00
6	Reclaim IT offices in Town Hall	1 mon	Mon 5/4/15	Fri 5/29/15		Help Desk Analyst,IT Director	$0.00
7	Create true help desk	2 mons	Mon 5/4/15	Fri 6/26/15		Help Desk Analyst,IT Director,Systems Analyst	$0.00
8	Migrate virtual servers to physical servers	2 mons	Mon 5/4/15	Fri 6/26/15		IT Director,Systems Analyst	$6,000.00
9	Consolidate virtual servers	2 mons	Mon 6/29/15	Fri 8/21/15	8	IT Director,Systems Analyst	$0.00
10	Library	1 mon	Mon 5/4/15	Fri 5/29/15		IT Director,Technical Librarian,Systems Analyst	$6,000.00
11	Reconfigure & train on New World LOGOS ERP system	6 mons	Mon 5/4/15	Fri 10/16/15		Applications Analyst,Finance,IT Director,Schools,Treasurer	$57,000.00
12	New World System LOGOS HR System Pilot	6 mons	Mon 11/2/15	Fri 4/15/16		HR Director,Applications Analyst,IT Director,Schools,Vendor	$12,000.00
13	Implement distributed purchase orders & centralized A/P in New World LOGOS system.	3 mons	Tue 12/1/15	Mon 2/22/16		Finance,All other Depts,Schools,Applications Analyst,IT Director,Vendor	$14,400.00
14	New World System LOGOS Payroll Pilot	4 mons	Mon 4/18/16	Fri 8/5/16	12	Payroll Manager,Applications Analyst,Finance,HR Director,IT Director,Schools,Vendor	$54,000.00
15	Create core network redundancy	4 mons	Wed 6/1/16	Tue 9/20/16		IT Director,Systems Analyst,Vendor	$13,000.00
16	Implement IT Governance	2 mons	Mon 5/4/15	Fri 6/26/15		IT Director	$0.00
17	Business Continuity Planning	6 mons	Mon 5/4/15	Fri 10/16/15	16	IT Director	$0.00
18	Data Security Compliance	6 mons	Mon 5/4/15	Fri 10/16/15		IT Director	$0.00
19	Enterprise Content Management (i.e. Document Management)	18 mons	Tue 12/1/15	Mon 4/17/17		Town Clerk,Applications Analyst,Vendor,IT Director,Systems Analyst	$144,136.00
20	Update Dedham Community Television Equipment	6 mons	Fri 5/1/15	Thu 10/15/15		Dedham Access TV	$0.00
21	Create redundancy in Police / Fire dispatch center	2 mons	Tue 12/1/15	Mon 1/25/16		IT Director,Systems Analyst,Vendor,Police	$5,175.00



Project: DRAFT Dedham Projec
Date: Sat 3/28/15

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

ID	Task Name	Duration	Start	Finish	Prede	Resource Names	Cost
22	**Create fiber legs between spokes of the Dedham fiber network to turn hub-spoke topology into a ring.**	1 mon	Tue 12/1/15	Mon 12/28/15		Facilities,IT Director,Systems Analyst,Vendor	$237,806.57
23	**New Citizen-centric website**	5 mons	Tue 12/1/15	Mon 4/18/16		*IT Web Master,IT Director,Vendor*	$50,000.00
24	**Implement License, Permitting, and Code Enforcement system.**	18 mons	Tue 12/1/15	Mon 4/17/17		Fire,Police,Health,Building,F Analyst	$261,851.00
25	**Implement Citizen Request Management system in all relevant departments**	12 mons	Tue 12/1/15	Mon 10/31/16		GIS Manager,Applications Analyst,Facilities,IT Director,Parks,Vendor,Town Manager	$20,000.00
26	**Implement Citizen Engagement system**	2 mons	Tue 12/1/15	Mon 1/25/16	23	Econ Dev,Health,IT Director,IT Web Master,Planning,Vendor	$3,500.00
27	**Citizen Services Office**	4 mons	Mon 2/1/16	Fri 5/20/16	25	Town Manager,Applications Analyst,IT Director	$0.00
28	**Migrate to new 3rd party payment processor**	3 mons	Mon 6/1/15	Fri 8/21/15		Applications Analyst,Finance,IT Director,Treasurer,Vendor	$0.00
29	**Implement Cash & Payment Mgmt in Town Hall offices**	3 mons	Mon 8/24/15	Fri 11/13/15	28	Treasurer,Town Clerk,Building,DPW,IT Director,Planning,Vendor	$1,500.00
30	**Consolidated Police & Fire Computer Aided Dispatch (Cad)**	12 mons	Mon 1/25/16	Fri 12/23/16	21	Applications Analyst,Fire,IT Director,Police,Vendor,GIS Manager	$150,000.00
31	**Purchase Plotter/Scanner for Town Hall.**	1 mon	Tue 12/1/15	Mon 12/28/15		Help Desk Analyst,IT Director,Planning,Vendor	$35,000.00
32	**Town of Dedham offices printer consolidation.**	4 mons	Mon 6/1/15	Fri 9/18/15		Help Desk Analyst,IT Director,Systems Analyst	$0.00
33	**Select a new PC and laptop platform, and tie to a five year refreshment cycle.**	1 mon	Mon 6/1/15	Fri 6/26/15		IT Director,Systems Analyst	$0.00
34	**Deploy non-Windows application suites on select desktops.**	1 mon	Mon 6/29/15	Fri 7/24/15	33	Help Desk Analyst,IT Director,Systems Analyst	$0.00
35	**Touchscreen monitors in the downstairs conference room of Town Hall**	2 mons	Tue 12/1/15	Mon 1/25/16		Facilities,IT Director,Planning,Systems Analyst	$12,000.00



Project: DRAFT Dedham Projec
Date: Sat 3/28/15

Task	Project Summary	Manual Task	Start-only	Deadline	
Split	Inactive Task	Duration-only	Finish-only	Progress	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	
Summary	Inactive Summary	Manual Summary	External Milestone		

T6 Dedham Security Survey Results

201 CMR 17.00 COMPLIANCE CHECKLIST	DPS	DPS Notes	Town	Town Notes
The Comprehensive Written Information Security Program (WISP)		Response is NO by definition as there is no WISP but reasonable efforts often made nonetheless.		Response is NO by definition as there is no WISP in place.
Do you have a comprehensive, written information security program ("WISP") applicable to all records containing personal information about a resident of the Commonwealth of Massachusetts ("PI")?	No	Many policies in line with general industry standards but no WISP	No	Acceptable Use Policy (AUP) but outdated.
Does the WISP include administrative, technical, and physical safeguards for PI protection?	No	No WISP	No	No but some use of secure email (e.g., Treasurer, Health, Veterans, Police.) BitLocker also used.
Have you designated one or more employees to maintain and supervise WISP implementation and performance?	No	But Mike Dewar will lead going forward.	No	
Have you identified the paper, electronic and other records, computing systems, and storage media, including laptops and portable devices, that contain personal information?	No	Not comprehensive but a list does exist for securing paper records and safekeeping.	No	Spreadsheet of all devices that Town Clerk retains.
Have you chosen, as an alternative, to treat all your records as if they all contained PI?	No	Formal process for authorization of access to student data but not official PI	No	
Have you identified and evaluated reasonably foreseeable internal and external risks to paper and electronic records containing PI?	No	No WISP	No	
Have you evaluated the effectiveness of current safeguards?	No	No formal risk assessment but unified threat management (UTM) at with weekly review of patterns by J. Spears..	No	
Does the WISP include regular ongoing employee training, and procedures for monitoring employee compliance?	No	No WISP	No	No WISP
Does the WISP include disciplinary measures for violators?	No	No WISP	No	No WISP

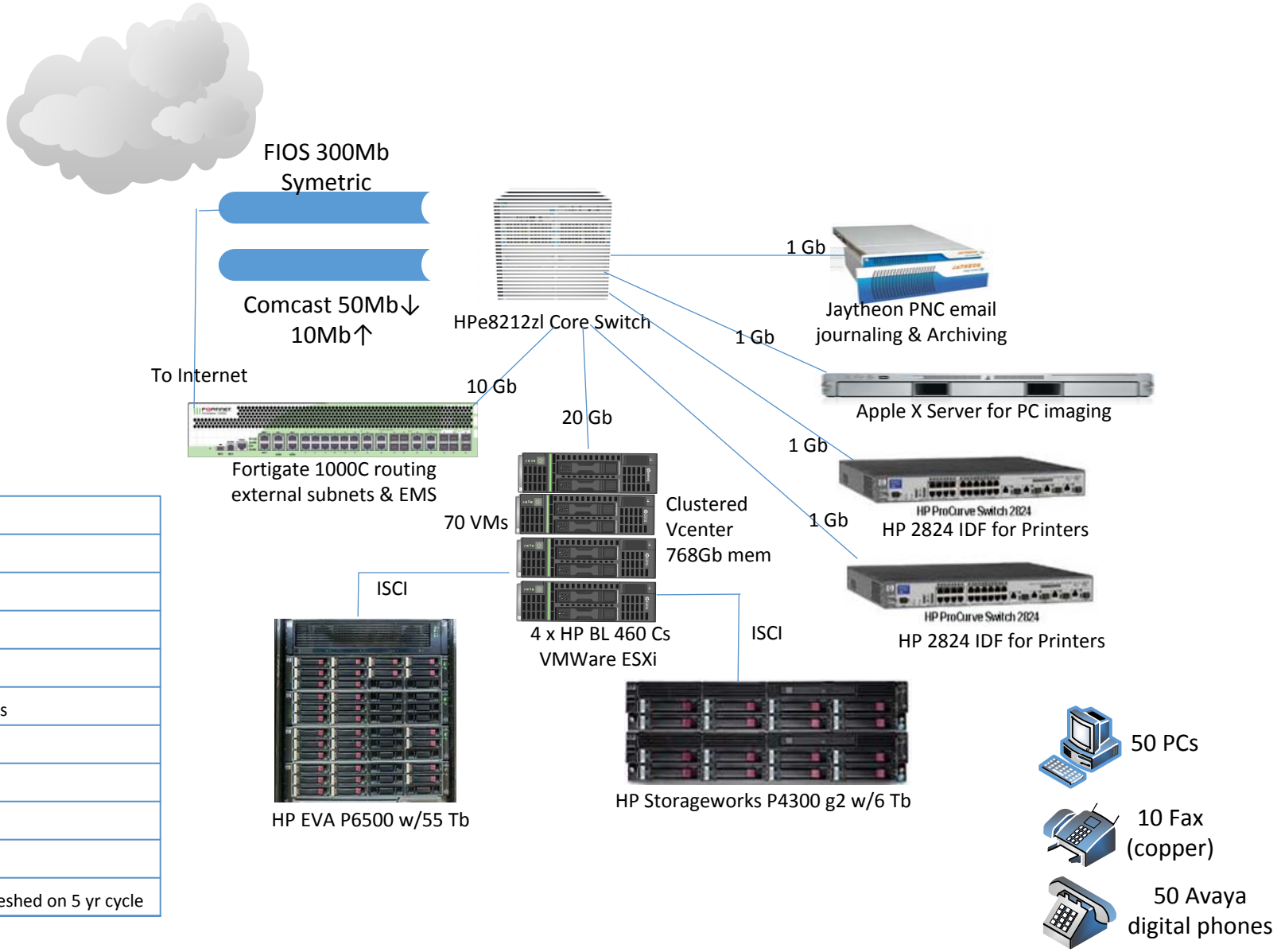
Does the WISP include policies and procedures for when and how records containing PI should be kept, accessed or transported off your business premises?	No	No formal policy specific to WISP but policies exist based on federal requirements (FERPA and HIPAA)	No	
Does the WISP provide for immediately blocking terminated employees‟ physical and electronic access to PI records (including deactivating their passwords and user names)?	No	Not in WISP but access by terminated employees blocked by removal from Active Directory	No	Not in WISP but access by terminated employees blocked by removal from Active Directory
Have you taken reasonable steps to select and retain a third-party service provider that is capable of maintaining appropriate security measures consistent with 201 CMR 17.00?	No	Back-ups are transferred to a 3rd party but need to confirm security measures consistent with 201 CMR 17.00	No	
Have you required such third-party service provider by contract to implement and maintain such appropriate security measures?	No	Key 3rd party providers comply with federal statutes but have not mandated 201 CMR 17.00 compliance	No	Need to ensure 3rd party providers like Harper's HR & Payroll use HTTPS encyrption.
Is the amount of PI that you have collected limited to the amount reasonably necessary to accomplish your legitimate business purposes, or to comply with state or federal regulations?	Yes		No	Yes to federal but need to evaluate for state
Is the length of time that you are storing records containing PI limited to the time reasonably necessary to accomplish your legitimate business purpose or to comply with state or federal regulations?	Yes		Yes	
Is access to PI records limited to those persons who have a „need to know‟ in connection with your legitimate business purpose, or in order to comply with state or federal regulations?	Yes		No	Physical access decisions are made by Dept. Management and not the IT department. Not based on PI criteria
In your WISP, have you specified the manner in which physical access to PI records is to be restricted?	No	Not in WISP but a policy is documented for records such as special education	No	Servers are kept in secure areas but remote devices are not encrypted.

Have you stored your records and data containing PI in locked facilities, storage areas or containers?	Yes	Datacenter has a individual security codes assigned to limited personnel. Monitored with camera and alarm. Backups are locked in a safe and a disaster recovery plan exists.	No	
Have you instituted a procedure for regularly monitoring to ensure that the WISP is operating in a manner reasonably calculated to prevent unauthorized access to or unauthorized use of PI; and for upgrading it as necessary?	No	No WISP	No	No WISP
Are your security measures reviewed at least annually, or whenever there is a material change in business practices that may affect the security or integrity of PI records?	Yes		No	
Do you have in place a procedure for documenting any actions taken in connection with any breach of security; and does that procedure require post-incident review of events and actions taken to improve security?	No	No formal procedure but diligent in practice	No	
Additional Requirements for Electronic Records				
Do you have in place secure authentication protocols that provide for:				
Control of user IDs and other identifiers?	Yes	Most user ID's controlled by Active Directory but not all vendor apps are compliant	Yes	But additional review need
A reasonably secure method of assigning/selecting passwords, or for use of unique identifier technologies (such as biometrics or token devices)?	No		No	Not mandated
Control of data security passwords such that passwords are kept in a location and/or format that does not compromise the security of the data they protect?	Yes		Yes	
Restricting access to PI to active users and active user accounts?	Yes		Yes	
Blocking access after multiple unsuccessful attempts to gain access?	Yes		Yes	
Do you have secure access control measures that restrict access, on a need-to-know basis, to PI records and files?	Yes		Yes	

Do you assign unique identifications plus passwords (which are not vendor supplied default passwords) to each person with computer access; and are those IDs and passwords reasonably designed to maintain the security of those access controls?	Yes		No	
Do you, to the extent technically feasible, encrypt all PI records and files that are transmitted across public networks, and that are to be transmitted wirelessly?	No	Not feasible given current DPS resources	No	Needs review
Do you, to the extent technically feasible, encrypt all PI stored on laptops or other portable devices?	No	No encryption yet on laptops or mobile devices	Yes	There should be no PI on laptops and mobile devices
Do you have monitoring in place to alert you to the occurrence of unauthorized use of or access to PI?	Yes		No	
On any system that is connected to the Internet, do you have reasonably up-to-date firewall protection for files containing PI; and operating system security patches to maintain the integrity of the PI?	Yes		Yes	Firewall with automatic updates done via patch management
Do you have reasonably up-to-date versions of system security agent software (including malware protection) and reasonably up-to-date security patches and virus definitions?	Yes		Yes	
Do you have in place training for employees on the proper use of your computer security system, and the importance of PI security?	Yes	But needs to be reinforced and tested,	No	
YES	**15**	**YES**	**9**	
NO	**19**	**NO**	**25**	

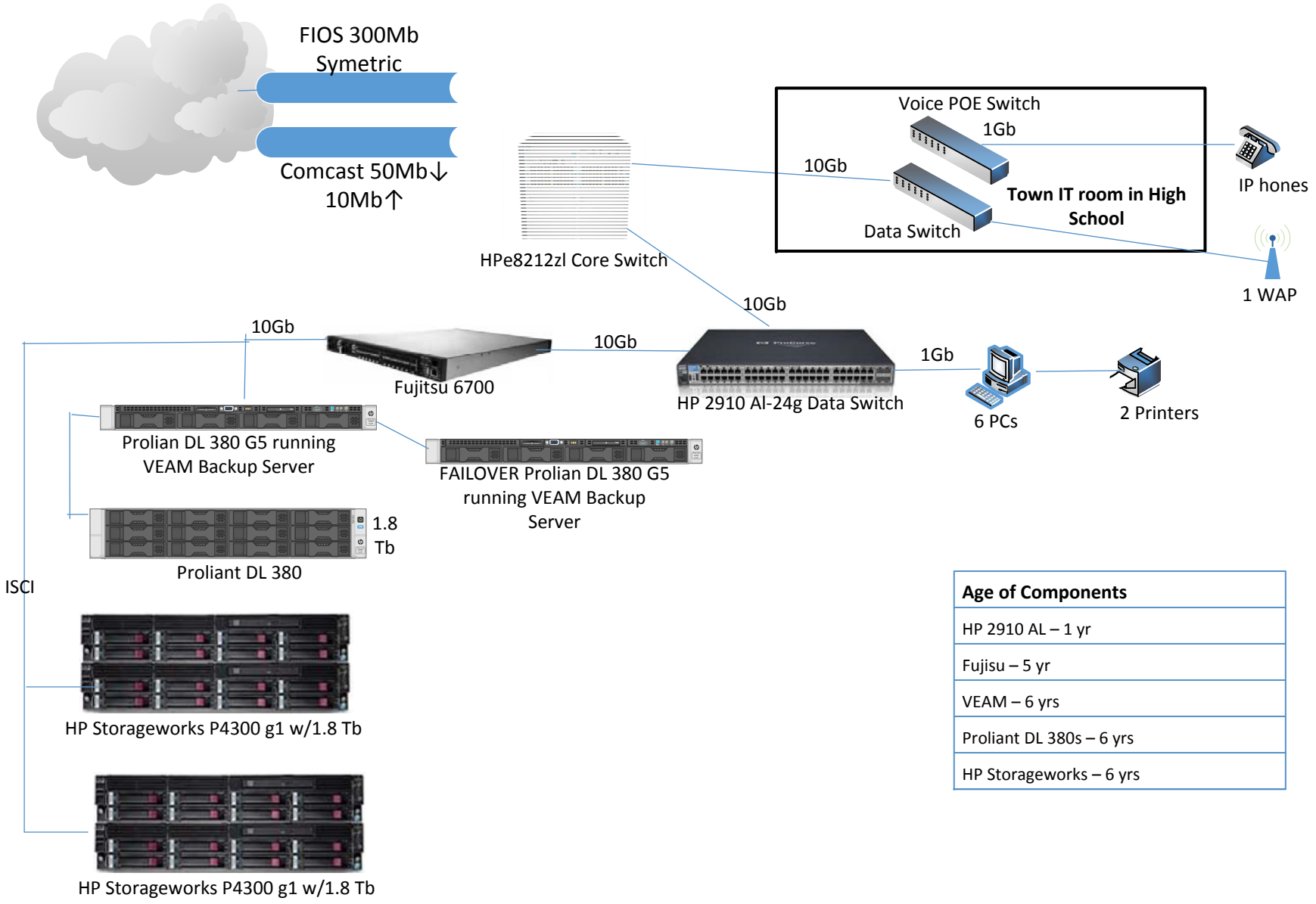
T7 Infrastructure diagrams & docs

Town Hall IT Server Room



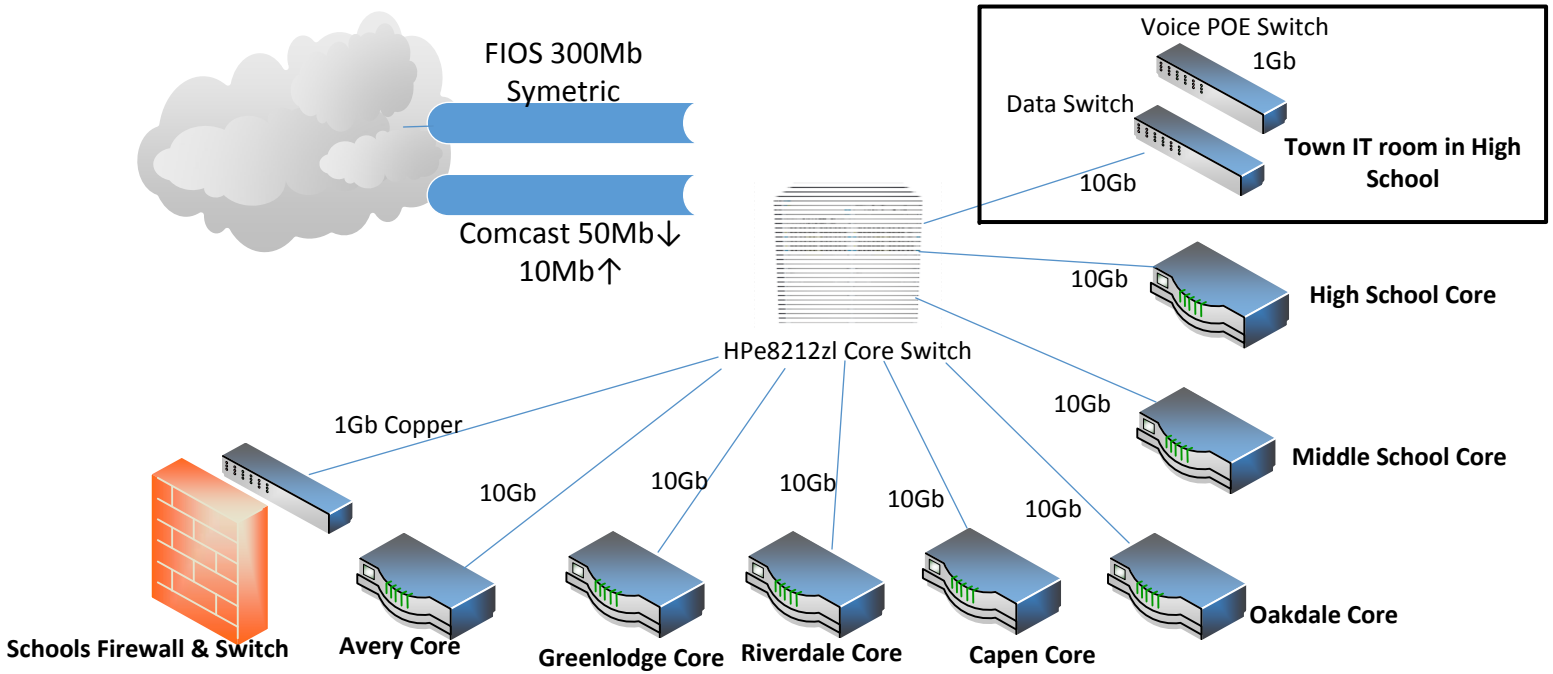
Age of Components
Coreswitch – 1 yr
Fortigate – 1 yr
HP Blades – 4 yrs
HP EVA – 2 yrs
HP Storageworks – 4 yrs
Jaytheon – 4 years
Apple Xserver – 5 yrs
HP IDFs – 8 yrs
POE switches – 2 yrs
Average PC – 3 yrs refreshed on 5 yr cycle

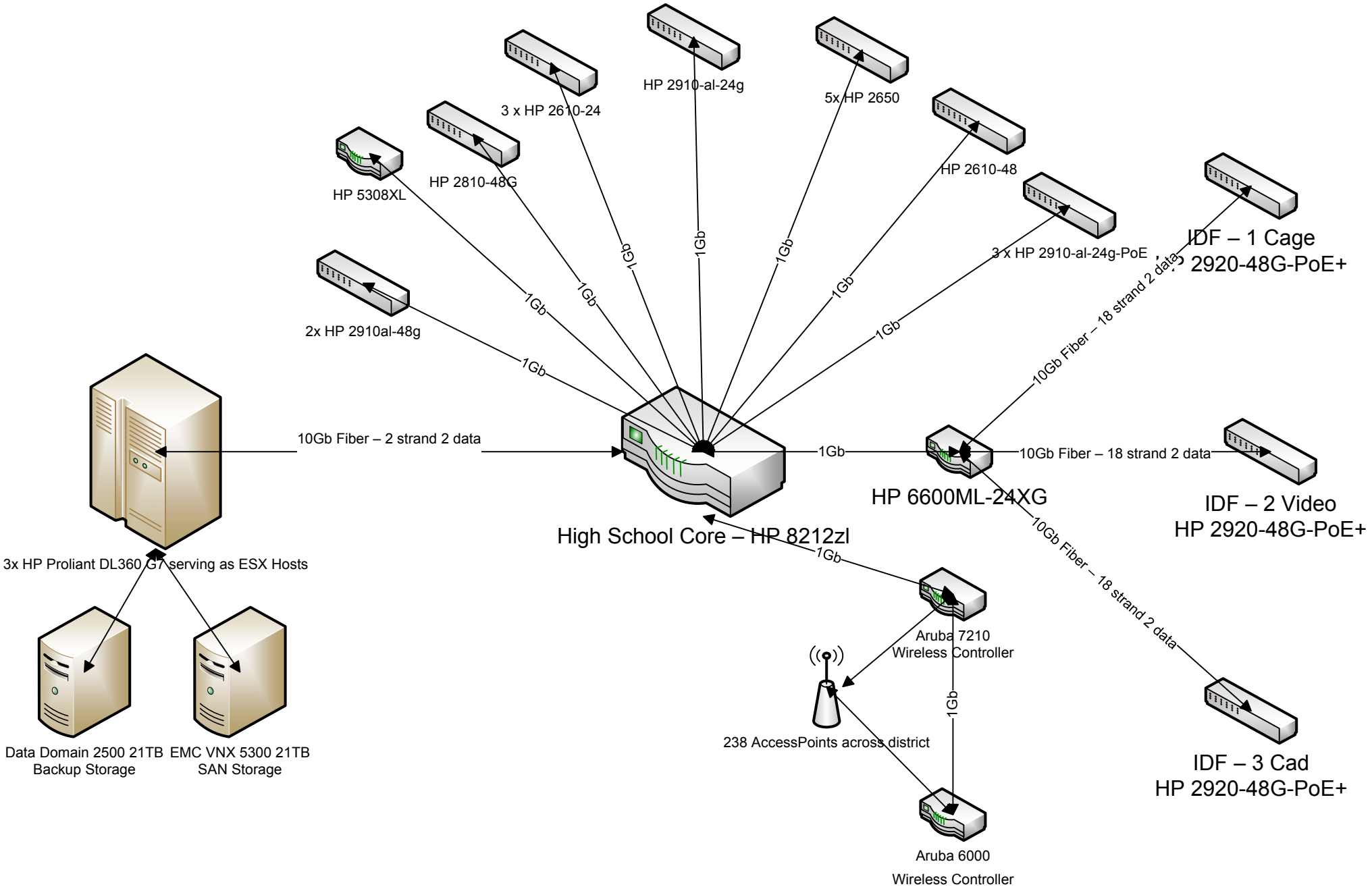
Town IT in High School Data Room

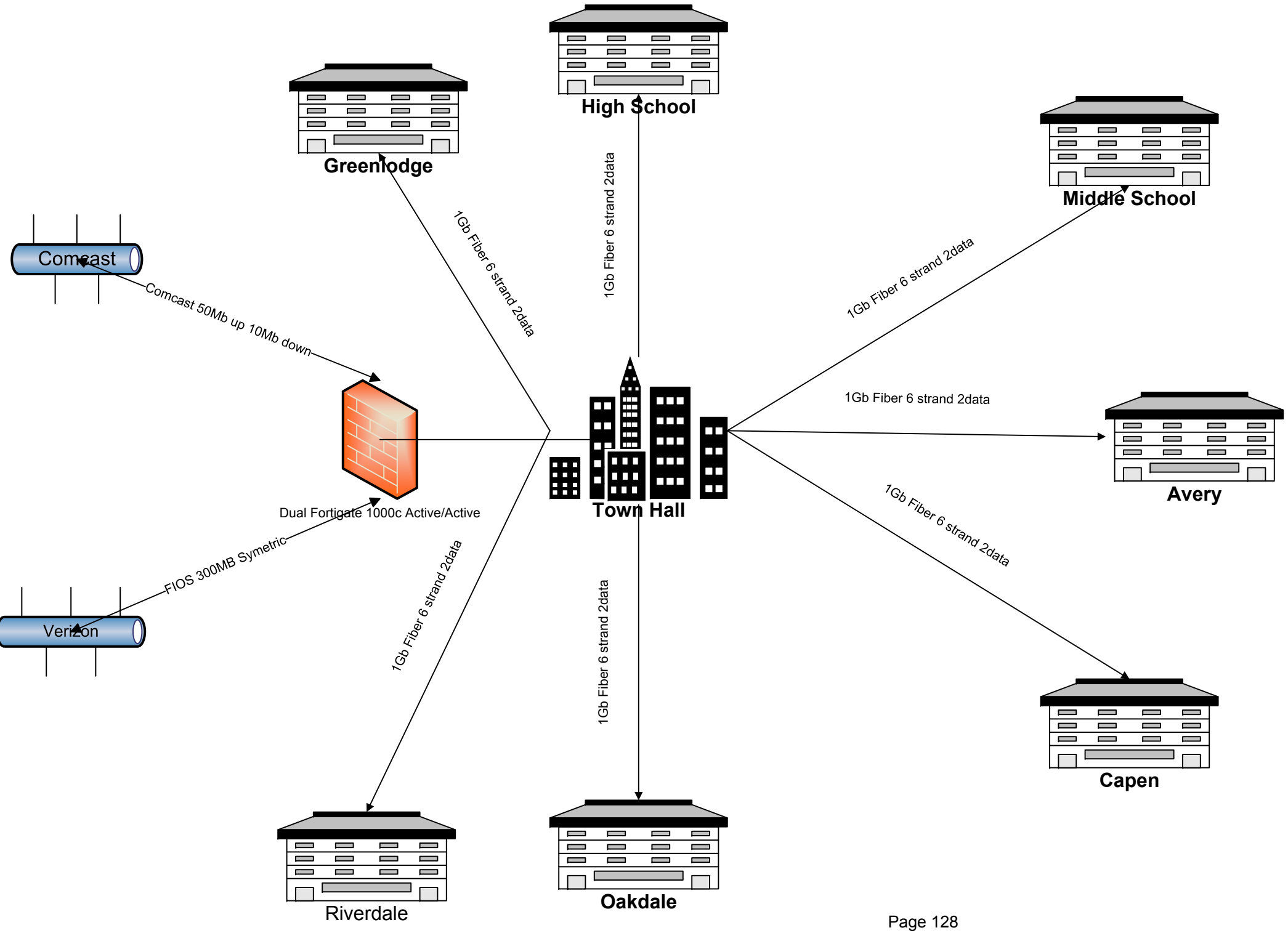


Age of Components
HP 2910 AL – 1 yr
Fujisu – 5 yr
VEAM – 6 yrs
Proliant DL 380s – 6 yrs
HP Storageworks – 6 yrs

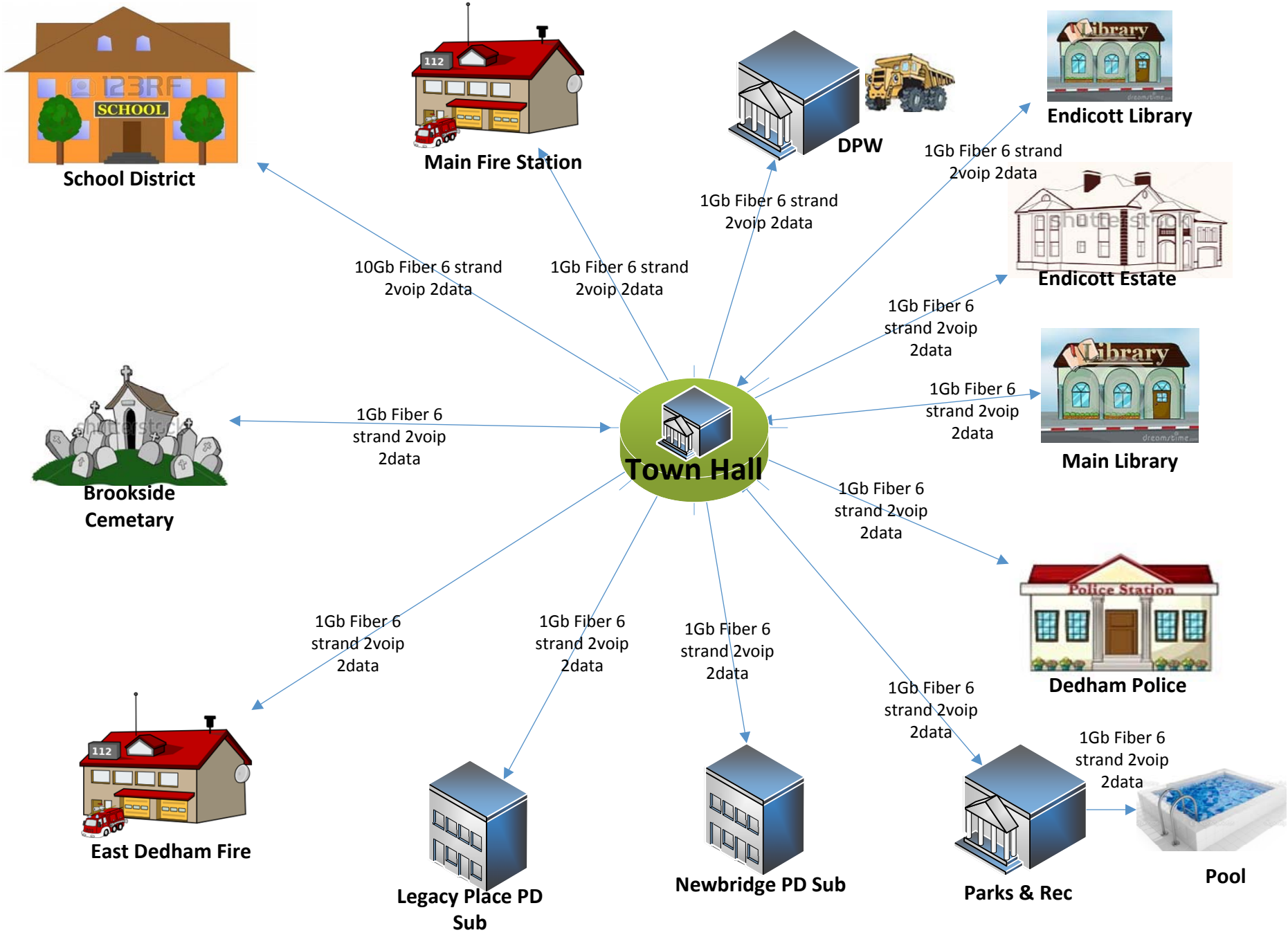
School Core Switch Connections




3 x HP 2610-24
HP 2910-al-24g
5x HP 2650
HP 5308XL
HP 2810-48G
HP 2610-48
3 x HP 2910-al-24g-PoE
IDF – 1 Cage
HP 2920-48G-PoE+
2x HP 2910al-48g
1Gb
10Gb Fiber – 18 strand 2 data
10Gb Fiber – 2 strand 2 data
HP 6600ML-24XG
IDF – 2 Video
HP 2920-48G-PoE+
3x HP Proliant DL360 G7 serving as ESX Hosts
High School Core – HP 8212zl
10Gb Fiber – 18 strand 2 data
Aruba 7210
Wireless Controller
238 AccessPoints across district
Data Domain 2500 21TB
Backup Storage
EMC VNX 5300 21TB
SAN Storage
IDF – 3 Cad
HP 2920-48G-PoE+
Aruba 6000
Wireless Controller



Dedham Public Schools – Star Network



Town of Dedham – Star Network

T8 Complete Project Notes

School (S) / Town (T) or Both (B)	Title	Purpose/Objective	Description
B	Video Management System for Police & Schools	Dedham has a hodge-podge of cameras in schools and public buildings that are connected to DVRs (Digital Video Recorders) that cannot interact with each other and aggregate video content. The result is that neither the Police Department, nor the Schools may view School or Town video during a public safety emergency. The Police Dispatch centers needs to be able to monitor ANY camera in the town, and the School District office should be able to view any camera currently installed in the schools. This centralized system, called a VMS, will aggregate video content from each location, and provide centralized storage and viewing.	Procure and install an Open VMS (Video Mgmt System) that will tie together and view all cameras in Town of Dedham at Police Dispatch, and all cameras in Schools at School District Office. The system will require the replacement of many of the obsolete DVRs that cannot hook to a new VMS, as well as the purchase of the VMS software, the purchase of the VMS hardware including storage array, and two large monitors (one for Police Dispatch, and one for Schools).
T	Create Emergency Operations Center support technology	The Dedham written Emergency Operations Procedures outline the staff needed in an activation of the center, and their role, however it does not specifiy which technologies are necessary for that role to be effective. This project will adequately scope and procure the technology, and configure and test it, so that during an emergency activation the EOC is ready to respond without delays. This includes computing devices, networking devices, and updated information on the effective use of these tools during an emergency situation.	* Procure new large touch monitors (2) $3,000 - $5,000 * laptops (11) $4,180 from Dell * wireless network points (1) $1,100 from Aruba * written procedures for their use by unskilled EOC personnel. * Create a locked 'Tech crash cart' containing laptops & wireless, that can be pushed into the EOC for use during an emergency (1) $420 * Work with Dedham Access TV and franchise providers to allow the EOC to transmit directly on Dedham TV channels as required by MEMA (Mass Emergency Mgmt Agency). * Create a predefined set of website pages and tickers that can be remotely turned on and updated for informational updates to citizens and others.
T	Generator Controls in Town Hall	Generators are not being exercised on a regular basis and quarterly tests of failover power and Uninterrupted Power Supplies (UPS) are not being performed. FM Generators has recommended the use of a Gen-Tracker panel installed near the transfer switch that will monitor and schedule the generator's operation. The Gen Tracker website can provide reports and alerts for generator failures. This is a critical need at any public safety location; fire department, police department, EOC in Town Hall, Middle School as Shelter, and High School as Shelter.	Order and install a networked automated generator transfer switch in City Hall to allow generator to be managed and exercised as needed. Controlled by software in IT. Costs are $2400 per EOC site (PD, FD, High School, Middle School, and Town Hall).
T	Generator Wiring in Town Shelters	In most cases there are no 'as-built' or electrical diagrams of which circuits are on the generator, and only a generator test and electrician participation will be able to confirm which outlets and circuits are protected. It is clear that in many cases the circuits on the generator are insufficient to meet the needs of a facility as a designated EOC shelter. It is also necessary for every outlet on the protected circuit to be labeled as a generator power circuit.	Verify that all critical components of the shelter environment (High School, and Middle School), including heating, water, bathroom faucets and toilets, are connected to the installed generators. Costs are a total of 3 EOC facilities (since a diagram of the Middle School is available) at approx. $3,000 per site.
T	Provide legally mandated Police data security.	The Dedham Police PAMET system stores and transmits information (CJIS) that meets and exceeds the State of Massachusetts standard of private Personal Information. At present there is no security encryption between the PAMET client systems and their remote virtual server in City Hall.	1- Create an end-to-end encrypted channel between PD computers and PD servers in Town Hall. Services - $1,200 2- Put PD server on physical hardware $2,000 3- secure server with a cage and/or lock. $800
B	Data Security Compliance	There are many data security standards that apply to data maintained by both the Town and Schools - HIPAA for HR, FERPA for Schools, CJIS for the PD, etc. However there are more basic data security standards mandated by the State of Massachusetts for the protection of PI (personal information) under Massachusetts law 201 CMR 17. Centric conducted a survey of both Schools and Town regarding their compliance with 201 CMR 17. The Schools met over half of the requirements, however the Town met almost none of the requirements (it also failed to properly secure CJIS data access).	Written data security policies and end-user data security training must be created by the IT department of both Schools and the Town to ensure they meet the standards of 201 CMR 17. In addition, the Town must encrypt the connection between the PAMET clients at the PD, and the PAMET server in Town Hall, as well as physically secure the PAMET server inside the server room. SEE PROJECT #9 This is a labor intensive project for the IT Director, not a dollar cost (although the Town can contract for assistance in such matters).
T	Enterprise Content Management (i.e. Document Management)	The Town of Dedham has no single repository or source of resource or historical documents, and no means of identifying where or how some records can be acquired by staff or citizens. Therefore Dedham cannot meet the State of Massachusetts requirements for records management and retention. So technology must be called upon to assist with this problem by implementing an ECM (Enterprise Content Mgmt system) whose benefits are: ú efficiency in creating, filing, accessing and managing electronic records; ú authenticity and integrity of documents; ú security and protection of records throughout their lifecycle (including archiving or eventual destruction); ú use of business processes to increase information accessibility and work efficiencies; ú reduced cost of paper records and storage; ú tracking of non-electronic records and files; and ú ability to expand into interactive information sharing with the public in the future.	Procure via RFP an internal or cloud-based document management system that will take all new, and critical old, documents and digitize and store them for electronic access by staff and citizens to meet Massachusetts Law & Standards. It is important to note that Centric recorded this as the single most requested project during its interviews with internal staff. Clearly all staff acknowledge the intractability of the current situation. Based on previous work with the Town of Dedham that helped the vendor understand the scope of the project, General Code estimated: * SQL Server, Windows virtual server $33,651 * Base Laserfiche software, plug-ins, and add-ons $75,655 * Professional Services $17,650 * Input Hardware $17,180 * Annual Support renewal $16,655
T	Update Dedham Community Television Equipment	The community television broadcast equipment at the Dedham Town Hall, both in the Board room and the conference room downstairs, is old and in need of replacement to meet current industry standards.	Dedham Community Access Television receives a large endownment each year from the Town of Dedham's franchise fees. It is not apparent that this endownment has been used to refresh the equipment dedicated to the Town public access channel. Dedham Community Access Television does not appear to understand that the equipment it is using for alll of its services belongs to the Town of Dedham by contract (should the contract not be renewed). It is also clear that Dedham Community Access Television has not been meeting contractual committments for financial reporting to the Town.

	Investment Costs					
Risks	Est. Duration	HW/SW	Professional Services - Install	Professional Services - Training	First year Support & Maintenance	Annual Support & Maintenance renewal
As recent school shootings at Sandy Hook and other middle and high schools have demonstrated, the ability for public safety officers to monitor live a situation in a school or town building is an unfortunate necessity. Further, the camera systems can be used in other non-emergency situations such as vandalism, arson, etc.	6 mos.	$31,870-$38,000	$0.00	INC.	INC.	$3,000-$5,000
It is misguided to label the adequate provisioning of the Town's EOC as a 'best practice'. It is both common sense and standard due diligence to ensure that when the EOC is activated, it has sufficient technical resources to meet the standards of its citizens and stakeholders, and that of MEMA. At the current time, if the EOC were activated, it is likely that few if any personnel would have portable technology, and only cell phones and radio would be operational. This is a high level risk that the IT Department must take ownership of.	2 mos.	$8,700 - $10,700	$0.00	$0.00	$0.00	$5,000 annualized over 3 years to $1666 (refresh cycle)
This is a critical need at any public safety location; fire department, police department, EOC in Town Hall, Middle School as Shelter, and High School as Shelter.	1 mos.	$12,000.00		INC.	INC.	$0.00
It is clear that in many cases the circuits on the generator are insufficient to meet the needs of a facility as a designated EOC shelter. It is also necessary for every outlet on the protected circuit to be labeled as a generator power circuit. Without such verification it is impossible to ensure that sanitary and food handling areas are powered as necessary.	3 mos.	$0.00	$9,000.00	N/A	N/A	N/A
It is a violation of Federal and State statutes and regulations for Personal Information (including criminal and juvenile) to be stored or transmitted electronically unencrypted. This must be remedied as both a requirement under State of Massachusetts law, and Federal Law.	1 mos.	$2,800.00	$1,200.00	$0.00	$0.00	$400.00
At this time, the Town of Dedham fails to meet State of Massachusetts data security regulations on almost every point.	6 mos.	$0.00	$0.00	$0.00	$0.00	$0.00
The Town of Dedham is currently out of compliance with Massachusetts records transparancy laws, and relevant records retention standards including: * 950 CMR 32 * M.G.L. c.4 sec 7(26) * M.G.L. c.30A sec 18-25 * M.G.L. c.30 sec 42 * M.G.L. c.66 sec 1, 8, 9 * Records in Common Schedule (01.070-01.081) Without resorting to a technological tool, this situation can only become more aggravated, especially when in a new Town Building.	18 mos.	$126,486.00	$17,650.00	INC.	$0.00	$16,665.00
Dedham Community Television is identified by MEMA as a critical piece of the Town's Emergency Operations infrastructure. However the old equipment in the conference room cannot support new EOC technologies, nor can the Town utilize the community television network without a Dedham Access TV staff member responding to Access TV Studio and turning on the head-end connection; something unlikely during a bona fide emergency.	6 mos.	$0.00	$0.00	$0.00	$0.00	$0.00

T	Create redundancy in Police / Fire dispatch center	The Dedham 911 Dispatch Center (PSAP) has three individual stations for dispatchers. Unfortunately these stations are NOT fully redundant, and thus during an emergency or staffing problem the Fire dispatcher cannot respond to and dispatch Police, or vice versa. This is a problem that gets in the way of efficient use of dispatch staffing. This project is to provide the hardware necessary to allow each station to function as an independent and fully redundant dispatch station, whether Fire, PD, or EMS.	Procure hardware and software licenses to allow ALL dispatch stations to be redundant and to dispatch Police and Fire from ANY station. * 4 new radio units (formerly MCS2000) - Station 1, 2, 3, 3 $500 ea x 4 * Keltron DMP704 Fire Alarm Box - Station 2 * Keltron DM738 16 switches - Station 2 * Zetron Model 26 Fire dispatch station - Station 3 * New PCs for PAMET CAD client - Station 1, 3 $450 x 2 * HP LJ Networked Printer $250.00 - All Stations * Avaya phone 24 button speed dial units $150 - Station 3 * Symposium LCD monitors - Station 2, 3 $130 x 3 * Symposium PC - Station 3 $450 *
B	Create core network redundancy	Single points of failure are the bane of any network, and having a single centralized core switch (through which all Town connections flow), without any redundancy, is the definition of a very risky single point of failure. A secondary and standby core switch is recommended to ensure that any failure of the main core switch does not take down the entire Town network.	Procure and install a redundant secondary core network switch (HP 8212zl). Install in new Town Hall network and systems control room. Dual home all existing core switch network connections using the existing 2 unused fibers from each star netowrk spoke to new Town Hall, to provide a simple redundant spoke-hub network (same topology as exists now). A heart-beat would be established to allow the secondary core switch to instantaneously take over in a primary core switch failure. HP 8212zl - $5,000 Dual Homing Fiber - $6,000 - $8,000 labor
T	Business Continuity Planning	I.T. standards are designed to analyze, record, and mitigate risks. As a core function of municipal government, technology infrastructure must be available and reliable as close to 24x7 as possible. This is not only to protect I.T. assets, rather it is a recognition that I.T. functions are crucial to management of government both before and after a crisis. Therefore any I.T. group must develop a Business Continuity Plan that outlines the risks, mitigation strategies, and priorities that must be addressed to support the continuing technology needs of government. The Town of Dedham has an offsite backup location, but no other identifiable disaster recovery or business continuity planning in any form. A plan should be started immediately. Detailed templates and samples are available on the internet to help bootstrap the process.	Develop a written technology business continuity plan.
B	Create fiber legs between spokes of the Dedham fiber network to turn hub-spoke topology into a ring.	The Town of Dedham has a hub and spoke network topology. That means that any network data must first traverse a spoke from a School or Town building, to the core switch at Town Hall (the hub), and then be directed to its ultimate destination either on another spoke, or out in the cloud. The major flaw of the hub and spoke topology is that it is both less efficient than a ring topology, and it introduces a single point of failure that can bring down the whole network. This project is similar to #17 in its mission to address the single point of failure, however it calls for a new fiber optic leg be strung between each spoke and its neighbors to create a full ring architecture.	Provision a fiber optic cable connection between each town building or school that forms a spoke in the current topology. Reconfigure network switches and bridges to route network traffic to the most efficient path to its destination. Maintain the current core switch as the gateway to the cloud. This in effect creates a self-healing ring structure for Dedham's network, which is highly resilient and redundant. This is a project to be undertaken a single step at a time due to the costs of running new fiber between spokes. $237,806.57
T	Create true help desk	100% of staff interviewed by Centric expressed dissatisfaction with the existing I.T. support effort. They were clear it was both understaffed and lacking the competence needed to meet user requests. Most disturbing to them was the lack of acknowledgement of help ticket submissions to the help desk application (Spiceworks), and no service levels to govern and ensure users of when or if a request would be addressed. The result is that over time Town staff hasve stopped submitting requests to the help desk, and instead have turned to expensive resources like Bob Stanley and Bill Ralph to become their defacto support resource. If Spiceworks (a free application) cannot handle the responsive communications and service level processing needed, then a commercial ticketing system should be implemented (cloud or local).	Implement Spiceworks in new configuration to better acknowledge and schedule requests, and provide IT Management periodic reports of service response times. Implement more remote system support. If Spiceworks cannot support communications needs or service level tracking, then implement a new COTS help desk application. Spiceworks if FREE. An attempt should be made to use it as fully as possible, including training for IT and Town staff, before purchase of another trouble ticket tracking system is explored.
B	Implement distributed purchase orders & centralized A/P in New World LOGOS system.	Currently most of the town departments do not use an automated and transparent purchase order management process. There are few manual fiscal controls to meet fund encumbrance standards and ensure appropriate Town purchasing requirements. In addition, the Town currently uses a system of decentralized A/P processing whereby invoices are merely submitted to Finance to be paid in the next check run. New World's LOGOS system, like all enterprise class ERP systems, has a Purchasing module that will automate purchase orders, ensure proper purchase approvals and limits, and correctly check for budget encumbrance before permitting the purchase to be made.	Utilize purchase orders for all purchases. Set up purchase limits and approvals per Town and State of Massachusetts purchasing guidelines. Centralize A/P invoice processing. This purchasing module interacts with the Accts Payable module in a process of two-way invoice matching before a payment can be made. An invoice will be matched to a valid encumbered purchase order, and all line items will be paid if product is confirmed received, and price matches purchase order. Differences between purchase order and invoice will be caught and addressed before the Town parts with its funds. * Purchasing, A/P, eSupplier modules * Implementation - 60 hrs $9,000 * Training & Support - 36 hrs $5,400
B	Reconfigure & train on New World LOGOS ERP system	The New World System's LOGOS software is a solid financial management (ERP) tool. However during its deployment many of its useful features were purchased, but not implemented and training and assistance in the implementation and the system modules and features was lacking. Thus the Town of Dedham has a true enterprise-class ERP application, but it is only half-deployed and poorly understood. This has a doubly negative impact, since many of the unused features of LOGOS would address the Town's manual financial controls that are less robust than needed or may be inefficient. The Town currently has a credit to use in purchasing training and consulting services, and it is recommended to purchase sufficient assistance from the vendor to leverage this resource and its functionality as originally envisioned and purchased.	Procure consulting and training services from New World Systems to improve efficiency in the use of this system, and utilize features that have been paid for but previously unimplemented. * Modules include Jrnls/Reporting, Annual Budgeting, Project Acctng, Contract Acctng, Gov't Reporting, Misc. Billing, Bank Recon, and Business Analytics * Implementation - 276 hrs $41,400 * Training & Support - 104 hrs $15,600
T	New Citizen-centric website	Dedham and its stakeholders (as observed in our focus group and survey) are seeking a website that is more dynamic, more informative, and allows the citizen to engage government in more online ways. The current CMS (Content Mgmt System) GetFused, is neither technically able to meet this need, nor managed in a way that supports the Town's objectives for greater ease of use, and user supportive tools.	Select a new website CMS (Content Management System) and hosted center, redesign website, migrate content from GetFused. This website would include separate domains for Endicott Estate and Library. Estimate from 3 vendors: $30,000 - $50,000 (most costs from migration of content)

Since dispatch stations are NOT fully redundant, during an emergency or staffing issue the Fire dispatcher cannot respond to and dispatch Police, or vice versa. This gets in the way of efficient and timely dispatching. This project is to provide the hardware necessary to allow each station to function as an independent and fully redundant dispatch station, whether Fire, PD, or EMS.		$4,140.00	$1,035.00	$0.00	$0.00	$745.20
The existing HP 8212 core switch does have a redundant power supply module, but does not utilize other redundant technologies. A failure of your HP 8212 would render both the Town and Schools dead in the water until the core switch were repaired.	24 mos.	$5,000.00	$6,000-$8,000	$0.00	$0.00	$2,000.00
Without a written and exercised Business Continuity Plan there is NO guidelines or protocols in place to deal with any emergency, including technological failure. No planning have been given to how critical systems will be supported, and if impacted how they will be reliably restored. As far as Centric can determine, there has been no test of an emergency restore of any of the infrastructure components of the Town of Dedham.	6 mos.	$0.00	$0.00	$0.00	$0.00	$0.00
Creating a ring network reduces risk of network failure due to hub failure.	Approx. 1 Mos. per leg	$0.00	$0.00	$0.00	$0.00	$0.00
The risks here are rather esoteric. The Town staff report a history of over 12 years of neglect from IT in support and innovation. Unless the IT Dept diligently implements an SLA (Service Level Agreement) based procedures, using ITIL or SMB COBIT standards, staff will NOT consider the department as effective or meeting the needs of staff, citizens, and stakeholders. There is no way to paint this as a 'best practice', this is IT Support 101 and should have been in place for years.		$0.00	$0.00	$0.00	$0.00	$0.00
Without a two-way invoice matching system there is no central enforcement of purchasing standards and encumbrance limits. Invoices can be anything written on paper and presented for payment. Verification of purchase receipt is not mandated via any system. Financial controls can't be administered without using a system like LOGOS (which of course the Town owns).	3 Mos.	Already under license	$9,000.00	$5,400.00	$0.00	$0.00
C	6 mos.	Already under license	$41,400.00	$15,600.00	$0.00	$37,810.00
As demonstrated by staff interviews, external focus group, and online survey, Citizens and stakeholders demand a more navigable website with greater content and more transparency (searching). The GetFused website and CMS systems is not at the commercial level that the Town needs.	5 mos. w/bids	$30,000 - $50,000	$0.00	$0.00	$0.00	$5,000 - $10,000

B	New World System LOGOS HR System Pilot	Currently the Town uses Harpers for Payroll and Human Resources. The School uses another application. Neither solution provides the integration needed between HR and Payroll, and neither provides for an eSuite (employee self service suite) for actions such as personnel actions, benefits tracking, and open enrollment. An integrated system, will be more efficient in the financial management of HR, and can be configured to implement an input feed of key HR data from the School's (and hopefully HR's) applicant tracking system.	Pilot New World LOGOS HR module for Schools and Town. This includes an integration to the Applicant Tracking system in use at both Schools and Town (TalentEd and maybe Applitrack). Would provide streamlined benefit management, open enrollment, benefit reporting, new hire counts, training attendee lists, etc. Will require defining a Position Control record for each employee. LOGOS HR Implementation: 80 hrs at $150 Applicant Tracking: $3,000 - $5,000 annual T & E: As incurred
B	New World System LOGOS Payroll Pilot	After successful implementation of New World LOGOS HR, the eSuite should be used to migrate the disparate and inefficient payroll reporting and accounting systems into one system that uses employee input to track time and attendance. The New World Payroll system should be configured to produce an output file that can be used to submit to Harper's for actual printing and distribution of payroll checks, efts, and W-2s. One gating factor to this implementation is the need for the Town to move from a system that processes payroll before corresponding employee time is reported, to one that processes payroll weekly or bi-weekly based on past reported work hours and accruals.	Pilot New World's LOGOS employee payroll components, including integration with Harper's for offsite payroll checks and W-2 printing. This project can only be taken on when payroll cycle is moved from current payment in advance, to payment for past full week or bi-weekly. LOGOS Payroll Implementation: 360 hrs at $150 T & E: As incurred
T	Implement License, Permitting, and Code Enforcement system.	For ten years the Town has been using Energov as its license, permitting, and code enforcement system. In reality it has really become just a difficult to operate permitting respository. Staff and citizens seek a new way to apply for licenses and permits, and schedule inspections online without having to come into City Hall to wait in line and pay. Several quality systems exist that will allow a municipality to post all relevant permits and licenses online, so that individuals can apply for them online, and to request an inspection. They also allow the individual to pay the relevant fee online before the permit, license, or inspection is processed. Unfortunately Energov is both bulky and user-unfriendly, and none of the interviewed staff feel it has met their or the citizen's need. There are numerous systems commercially available to the Town as both a local server application or a hosted service that will allow licenses, permits, and inspections to be handled as online processes.	Implement License, Permitting, Inspection and Code Enforcement system for all relevant departments. Allow stakeholders to submit via web permit & licensing requests, request code enforcement, request inspections, and pay fees and fines electronically. Use tablets for town staff to access system to improve productivity when out of the office. Tablets are an important tool to take advantage of the mobility of a new system, and allow staff to efficiently interact with the system without having to return to the office. As part of this project we estimate the need for approx. 8 tablets. Ranged estimates (based on Accela & Municity): * SQL Server, Windows virtual server $33,651 * Base software, plug-ins, and add-ons $125,000 - $225,000 * Professional Services included * Annual Support renewal 20% 25,000 - $45,000 * 8 tablets - $400 ea = $3,200
T	Implement Citizen Request Management system in all relevant departments	Citizens and stakeholders have expressed a strong and clear desire to engage with municipal government to report problems and issues that can be addressed by Town Department staff. The YourGov application has been on the Town website for some time, and now should be promoted heavily as a request management system. This means that all relevant departments must monitor and respond to requests within Cartegraph so that individuals do not assume it is another dead end for a citizen request.	Cartegraph CRM system is already under an enterprise license. It should be deployed to Parks & Rec, all DPW, Facilities, etc. Which will require some training and additional configuration services. Cartegraph includes Fleet Mgmt and Asset Mgmt which will require estimated implementation services of $20,000.
T	Implement Citizen Engagement system	Town Staff such as Economic Development, Planning, Environmental, etc. as well as interested citizens, need a mechanism to allow individuals to propose or comment on recommendations for development or redevelopment of a parcel or asset. This engagement includes a free ability to post comments, suggestions, critiques, as well as to be electronically polled for an opinion regarding questions of procedure and planning. Some website CMS systems provide such a tool as a website template (e.g. CivicPlus), other options are to purchase a specific application to manage this engagement. Our recommendation is that this should be part of any selected CMS, and it must be considered a valuable citizen engagement mechanism and implemented as necessary and appropriate.	Either via website tools, social media, and/or a cloud-based application, provide a place for ideas and projects to be posted for Citizen response and suggestions. For instance, the project to move Town Hall to a new location, and move PD to the old Town Hall. Requested by Econ Dev, Building Department, Environmental, etc. If a purchase of a web module was necessary, Centric estimates that this module would cost no more than $2,500 - $3,500.
T	Implement Cash & Payment Mgmt in Town Hall offices	Utilizing Point of Sale (POS) computer stations, at the office counters in Town Hall where checks, cash, or credit payments are to be made. If POS systems cannot be accomodated, then customer walk-up offices in Town Hall should have at least one computer set up as a kiosk on the customer side of the counter where the customer can make payments with credit/debit cards. This project is dependent on the prior completion of Project # 25.	POS systems are desktop computers with a cash drawer and a pole display built in or attached by cabling. They can function simultaneously as both a workstation computer and a cash register. Use of POS systems enables each station to report on transactions and cash by a logged in clerk for proper payment auditing. These reports can efficiently supplement Town treasury receipts for input into the Revenue system. If a card swipe is attached, these POS systems can enable customers to swipe their cards for debit/credit payments via a 3rd party processor. If POS is not possible, a kiosk solution is selected and the kiosk is merely a computer with a swipe mounted on it in which customers can look up their obligations on the 3rd party processor site and swipe to make a debit/credit payment immediately. If the kiosks are equipped with a printer the customer can print a receipt for the clerk to confirm, or conversely the clerk can look up the payment in the 3rd party gateway. Town Hall needs only 4 - 5 systems, so Centric proposes that older desktop computers still working be deployed for this purpose at no cost. An older workstation can be made into a kiosk at no cost, or into a POS station for approx. $200 each.
T	Migrate virtual servers to physical servers	A virtual VMWare server is a good way to optimize the use of CPU and server resources for an application. However VMWare is hosted on a set of connected physical servers and must be considered a single point of failure for critical infrastructure components. Therefore two critical servers, that of the DNS (Domain Name Server), and that of the VMWare VCenter control software, should be placed on physical hardware to prevent being impacted during a failure on any of the VMWare physical servers..	To mitigate single points of failure in core system components both the Domain Controller and the Vcenter system should be migrated from virtual systems to physical servers. 2 physical rack servers are needed. Estimated as HP Proliants at $3,000 ea = $6,000 No licensing impacts.
T	Consolidate virtual servers	VMWare virtual servers are a good way to consolidate expensive physical server resources, however if every application and database is implemented as a separate Vmware virtual server then the organization incurs both (a) increased resource overhead, (b) a larger management task for staff, and (c) a licensing impact since each server needs applicable licensing for its server and CALs (Client access licenses). Consolidation of some of the virtual servers will reduce licensing cost, and make management of the VMware stack easier.	Consolidate virtual servers, especially database servers to lower licensing costs without system response impact. SAVINGS: approx. $180,000-$200,000 in licensing costs.

The Town has been without a formal HR Manager for a long time. There are large amounts of work necessary to develop policy, update files, analyze costs, manage and mitigate bargaining unit contracts, etc. The Town already owns LOGOS HR and pays for licensing. The Town can realize great efficiencies in HR processing utilizing the tools it has. If the Town does not wish to take advantage of this, they should at least remove LOGOS HR from their annual licensing.	6 mos.	Already under license	$10,800.00	$1,200.00	$0.00	$5,556.00
Payroll is currently a predominantly manual process at all departments, sometimes submitted by spreadsheet, and sometimes by paper. It is ALWAYS assumed that an employee works 40 hrs. Aside from DPW, there is no timekeeping system in place. It is Centric's position that there are significant inaccuracies being fed into the payroll system, which could account for many tens of thousands of dollars each year if not higher. Failure to create adequate attendance and accruals data through a system like LOGOS (that the Town already owns) is a financial controls problem.	4 mos.	Already under license	$30,000.00	$24,000.00	$0.00	$5,556.00
Online Permitting, Licensing, and Enforcement systems are considered a 'best practice'. Without such a system, there are no documented controls for management of this revenue source. For example, in attempting to get an estimate for the cost of these systems, most departments were unable to identify what licenses, permits, and inspections they perform, the annual number of these transactions, and even the number of staff members who may be handling the transactions. Online permitting and licensing was one of the highest requested enhancements by external citizens and stakeholders, so it is a 'best practice' that over fifty Massachusetts communities have embraced.	18 mos.	$161,851 - $261,851	INC.	INC.	$0.00	$25,000 - $45,000
Citizens Services, as well as DPW, Parks & Rec, Facilities, all should utilize the Cartegraph system as a Citizens Request system.	12 mos.	$0.00	$20,000.00	INC.	$0.00	$0.00
In alignment with the goals of transparency & citizen engagement, a designated Citizen engagement web tool would be of value. Without which it is hard to imagine how the Town could reliably harvest and understand Citizen and stakeholder consensus. This tool will most likely be a part of the purchase of a new website CMS for the Town. The Town is cautioned NOT to merely attempt to use Social Media tools and sites to meet this need, otherwise it exposes itself to complaints of non-transparancy under the Mass Open Meetings Law 940 CMR 29.0.	2 mos. w/bids	$2,500 - $3,500	$0.00	$0.00	$0.00	$0.00
Research during Centric's external focus group, as well as via the online survey, indicate that most stakeholders wish to make payments outside City Hall through online methods. However when that is NOT possible they wish to use credit/debit payments instead of being required to submit all transactions via cash or check. This is not a 'best practice' but rather a standard practice and something that our stakeholders do not accept as not possible.	3 mos.	$1,500.00	$0.00	$0.00	$0.00	$0.00
Virtual servers are poor choices for core system functions. If the VMServer were to fail, NO user access would be possible due to the loss of the Domain Controller. Similarly, if the VMServer were to fail, and it could not boot its own Vcenter controller, all of the Town's virtual servers (most of its functionality) would be lost until repaired.	2 mos.	$6,000.00	$0.00	$0.00	$0.00	$0.00
There are few inherent 'risks' in having more virtual servers than necessary. It is strictly a matter of misuse of your licensing dollars. During the recent run of Microsoft licensing analysis requested by Centric, approx. 50% of the virtual servers were unused or very significantly underutilized.	2 mos.	$0.00	$0.00	$0.00	$0.00	$0.00

T	Consolidated Police & Fire Computer Aided Dispatch (Cad)	Currently the Dedham 911 PSAP (dispatch office) in the PD utilizes PAMET software for Police dispatch and RMS (Records Mgmt System), Symposium software for Fire dispatch, and Firehouse software for fire RMS (Records Mgmt System). PAMET does not integrate with Dedham's GIS system, but Symposium does.	Create an RFP to select and implement a consolidated computer aided dispatch system that serves both Police and Fire and by consolidation is easier to manage, easier to maintain geographic and RMS data, and provides simple redundancy between dispatch stations at the Dedham PSAP in the PD. It should also provide for ease of use in mobile data units (tablets) for both Police and Fire. TriTech is one of the top vendors of integrated Police/Fire/EMS CAD (computer aided dispatch) system. Tritech's integrated systems are priced between $100, 000 - $150,000 for communities of similar size to Dedham PD and FD.
T	Implement IT Governance	I.T. Governance is the process of putting structure around how organizations align IT strategy with business strategy, ensuring that organizations stay on track to achieve their strategies and goals, and implementing good ways to measure IT?s performance. It makes sure that all stakeholders? interests are taken into account and that processes provide measurable results. An IT governance framework should answer some key questions, such as how the IT department is functioning overall, what key metrics management needs and what return IT is giving back to the Town from the investment it?s making. The level of sophistication in IT governance planning will be smaller in Dedham than in a large commercial enterprise, but standards of performance, metrics, and planning and alignment strategy are needed even in a town like Dedham. Dedham's Town I.T. department has no components of IT governance in place, and should request assistance from MassIT (MA Office of Info Tech) and the government technology group of the Massachusetts Municipal Association (MMA), as well as study ITIL implementations in small municipalities.	Develop an ITIL based support process. Create multiple lacking written IT policies. Create a set of standard management reports for IT Mgmt to assess and track IT performance both services as well as assets. Develop a set of service level agreements from I.T. to end users, and design an escalation process to ensure that problems are handled in a timely manner. This also requires that a new attitude of support and service to the Town be instilled in all I.T. staff to replace the current attitude of complacence and disenfranchisement.
T	Purchase Plotter/Scanner for Town Hall.	The Planning and the Building Department have no access to a scanner to scan in plans and architectural/parcel diagrams, and no plotter to print out the CAD and PDF documents sent to them by developers, etc. The only plotter is found at the DPW offices. This forces the Town Hall departments to downsize all documents to a standard laser printer page size, thereby losing critical detail in the document. It would also be much more efficient and valuable for the planning and zoning board use.	Plotter/Scanners range in price from $17,000 - $35,000. Plotter only units range in price from $4,000 - $7,000.
T	Select a new PC and laptop platform, and tie to a five year refreshment cycle.	I.T. has invested in Apple computers as the standard for desktop and laptop computing. Their explanation is that Apple equipment is more reliable. In spite of this I.T. has also invested in Applecare warranties for all equipment. Since the computers are configured as Microsoft Windows computers they are essentially just expensive Microsoft desktops and laptops. The use of these systems does not justify the approximately 40% higher price for Apples, nor the need to purchase expensive Applecare warranties. Significant savings can be had without compromising reliability by selecting a major intel-based PC vendor like Dell or HP where contracted government pricing can be leveraged. As units are retired on a formal refreshment cycle, Apples should be replaced with PCs. In addition, Applecare warranties should not be renewed. Efforts should be made to collaborate with the School District's I.T. staff to select a compatible standard.	Save considerable funds by selecting a new PC and laptop platform that is reliable and significantly lower cost than Apple computers. Save Apple computers for graphic intensive applications and staff only. Reference school technology hardware standards and procurement. Apple all in one desktops > $1,000 vs Dell Inspiron all in one desktop ~ $500 SAVINGS: In FY2015 IT budgeted $100,000 for replacement hardware (assumed to be desktops). If Dell or similar Intel-based OEM were used the Town could either double its refreshment rate, or reduce its expense down to approx. $50,000.
T	Town of Dedham offices printer consolidation.	Town of Dedham offices have far too many printers than is necessary to perform their functions. Consolidation of printer use to a single MFU (Multi-function unit - scanner, copier, printer) would save on managed print services costs per page, and remove the need to maintain and refresh this huge printer fleet.	Select an appropriate MFU (there are several in the Town Hall that can be used as reference for quality and durability), and renegotiate the Town's managed print services contract to support the MFUs only, and to discount black & white prints over color prints. HP MFP (Multifunction Printers) range from $2,500 to $8,500 (for a system with onboard codes and printer reports).
T	Deploy non-Windows application suites on select desktops.	I.T. has been installing a fullly licensed version of Microsoft Office on all supported desktops. I.T. staff have explained to Centric that this decision was made by senior management in the past. Cost savings can be had by limiting the deployment of MS Office to only experienced users who need the horsepower of an MS Word or MS Excel or Powerpoint. Similarly, the actual mail server at the Town of Dedham is a Zimbra applicance. It is more intuitive and easier to operate than Microsoft Outlook for end users.	Cost savings can be had by limiting the deployment of MS Office to only experienced users who need the horsepower of an MS Word or MS Excel or Powerpoint. Other users can be offered either the FREE OpenOffice Suite (similar to MS Office), or the FREE Google Aps offered by Google. Both of these alternatives can share files with MS Office users back and forth. Similarly, the actual mail server at the Town of Dedham is a Zimbra applicance. It is more intuitive and easier to operate than Microsoft Outlook for end users. Unless a user has a dire need to use MS Outlook (e.g. a specific add-in), then another license cost can be saved. Microsoft Office 2010 ~ $219 vs Free OpenOffice or Google Apps SAVINGS: In FY2015 IT budgeted $100,000 for replacement hardware. Assuming this represents 100 computers, the use of a Fre office suite could save $21,900

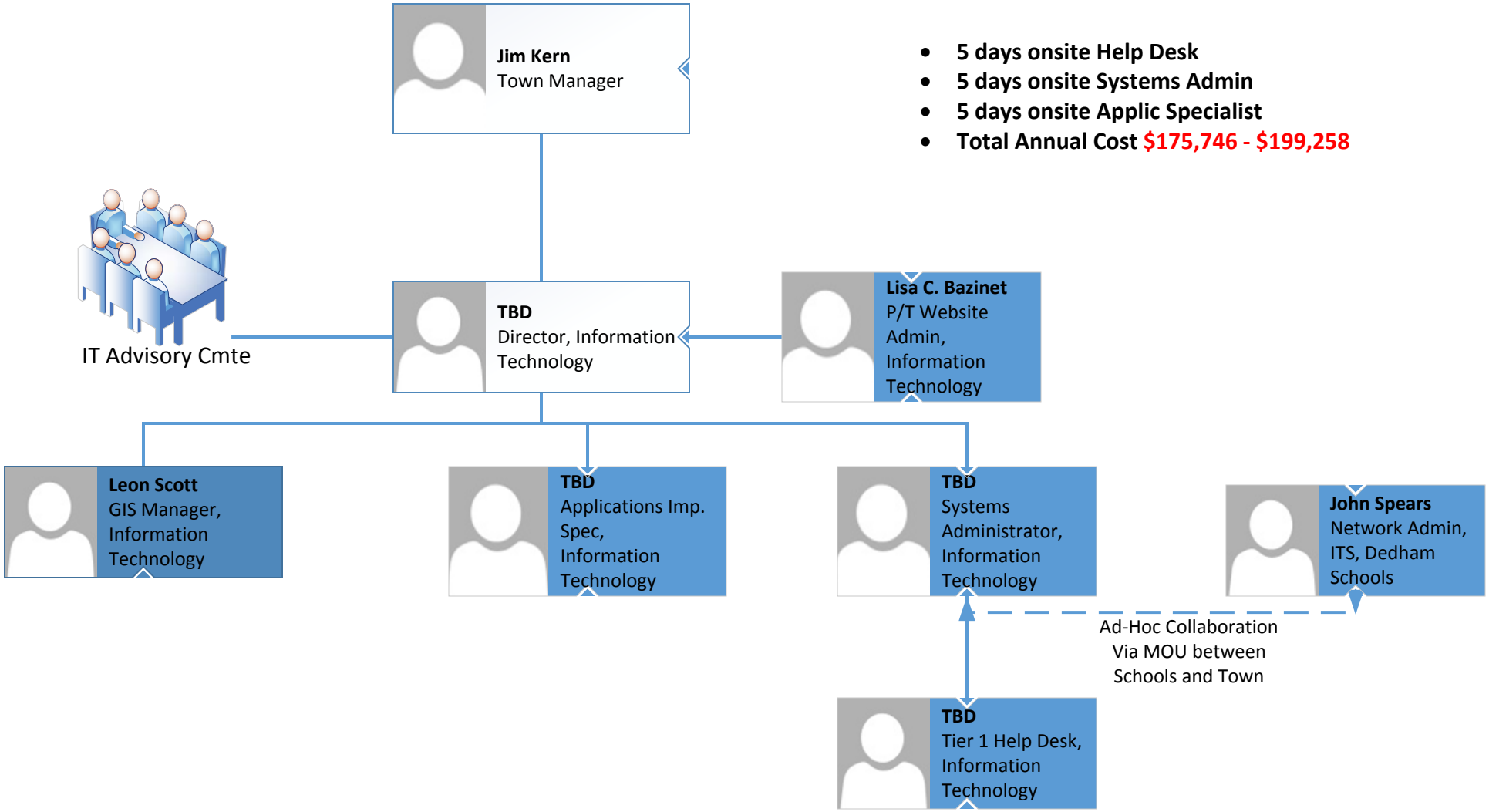
This balkanized environment has led to a lack of maintenance of RMS data in either Police or Fire, and the failure to use software like Firehouse to its full potential. Dispatchers are forced to use paper and binders when dispatching because the Symposium system has not been configured to automate that, and because Firehouse is not properly integrated Dispatch must receive a faxed handwritten roster from Fire rather than use Symposium to track units. PAMET has been in long use at Dedham, but does not use Dedham GIS so issues like blocked roads for road work cannot be recognized by either Police or Fire when dispatching. PAMET's support of mobile data terminals is problematic and the dispatch center does not therefore trust it enough to use the mobile server for any of its functions. Fire's mobile data units run a version of Symposium, that is too challenging to manipulate inside a moving truck and therefore they use the radio to the dispatcher to log their departures and arrivals.	12 mos.	$100,000 - $150,000	$0.00	$0.00	$0.00	$0.00
Information and technology (IT) governance has evolved from The Principles of Scientific Management, Total Quality Management and ISO 9001 Quality management system. The primary goals for information and technology (IT) governance are to (1) assure that the use of information and technology generate organizational value, (2) oversee operational performance and (3) mitigate the risks associated with using information and technology. This can be done through broad-based direction, implementing an organizational structure with well-defined accountability for decisions that impact on achievement of strategic objectives and institutionalize good practices.	2 mos.	$0.00	$0.00	$0.00	$0.00	$0.00
The Town of Dedham will overpay an external vendor for digitizing and storing their large format prints (maps and diagrams).	1 mos.	$17,000 - $35,000	$0.00	$0.00	$0.00	$1,700 - $3,500
IT Dept staff have been purchasing Apple computers and warranties for many years. Obstensibly because they are "more reliable". Since the Apples are imaged as PCs, and since most PCs have at least a 3 year reliability agreement, there is little to no risk in purchasing more cost effective equipment.	1 mos.	$0.00	$0.00	$0.00	$0.00	$0.00
The profileration of printers throughout the town prevents any economies of scale in printer towner and paper expenditures. Estimates of cost will depend on how aggressive the Town pursues this printer overflow issue.		$0.00	$0.00	$0.00	$0.00	$0.00
IT Dept staff have been purchasing Apple computers and warranties for many years. Obstensibly because they are "more reliable". Since the Apples are imaged as PCs, and since most PCs have at least a 3 year reliability agreement, there is little to no risk in purchasing more cost effective equipment.	1 mos.	$0.00	$0.00	$0.00	$0.00	$0.00

T	Library	The Town of Dedham Library System serves a broad cross-section of Dedham's population. While IT has been consistent in installing systems at the library, they have been very poor at maintaining them. In addition to improving technical support by better collaboration between their new Technical Librarian and the IT Dept., there are several devices that would be welcomed by the Library patrons.	The library needs to have its systems programs refreshed more often than a staff computer due to use by external parties. It is both possible, and recommended that the Technical Librarian be granted Administrative access to Library computers. The library is also very pressed for space and should take a leaf from other local libraries and offer the checkout of simple Chromebook computers for use at the desks, tables, and stacks. We are recommending the purchase of 5 Chromebooks at a cost of approx. $1,000. The library also has an obsolete fleet of printers and no central control of printing, copying, and scanning. For that reason Centric is recommending that an HP Multi-function Printer is purchased to replace one or more existing printers at $5,000 . This MFP can be managed by software to allow the Library staff to easily collect payment for scans, copies, and printouts.
T	Touchscreen monitors in the downstairs conference room of Town Hall	Touchscreen monitors in the downstairs conference room of Town Hall would be valuable for loading and manipulating graphic images for meetings like the planning and zoning board. It would also be valuable during any activation of the Dedham Emergency Operations Center to allow viewing of GIS data and simultaneous viewing of State of Mass EOC data.	65 inch touchscreen monitors from vendors like GVision, NEC, Samsung, inFocus, etc. range in price from $3,000 - $5,000. Installation and programming of the units should be purchased from the vendor. These monitors should also be directly connected to the Dedham CTV system in the conference room. 2 Monitors x $3,000 - $5,000
T	Reclaim IT offices in Town Hall.	It is clear from Centric's assessment that IT staff must be physically located in Town Hall to meet the response needs of Town staff. Unfortunately, IT staff have moved to an office in the High School due to the excessive clutter of decomissioned or broken electronic equipment, and the use of the IT Town Hall office as a file cabinet storage area. This office space must be reclaimed by IT for support of Town Hall.	All unused equipment should be taken to the State for auction, and file cabinets should be removed. Oversized office cubicle furniture should be removed and replaced with smaller ergonomic workspace furniture. Operable desktops and monitors should be retained for use as kiosks and POS systems.
T	Citizen Services Office	Government exists to support the people, yet many municipalities fail to recognize the need to assist citizens and other stakeholders in getting engaged in their community, and streamlining the processes of government to better meet the people's needs. The role (or in some cases the department) of Citizen Services is intended to provide a dedicated (part-time for Dedham) resource to help bridge that gap between individual and government. The Citizens Services role is to effectively and efficiently register and route city service requests, answer citizen requests for information, provide City departments with statistics as needed, and maintain Citizen Services web content.	Reallocate a P/T position in Town Management Offices to provide a Citizen Services contact where stakeholder requests can be received, triaged, and routed to the right Town staff. Would utilize the enterprise version of Cartegraph, and maintain simple Citizen Services web content. Estimated effort: 14 - 18 hrs per week.
T	Migrate to new 3rd party payment processor	Currently the Town uses InvoiceCloud for its 3rd party payment processor. However InvoiceCloud cannot handle ad-hoc bills for payment. An ad-hoc bill is created whenever a customer requests to pay for a permit, license, registration, reservation or the like at the time they apply for it. The 3rd party processor must easily allow the Town staff member to create a bill for that permit, etc. and then the customer can log in via kiosk, tablet, phone, etc. and make the payment with their own credit/debit card. It is important that all transactions occur over the internet so that the Town does not have to meet stringent credit card industry PCI standards. This new 3rd party processor can handle any kind of scheduled or unscheduled payments.	Conduct a simple RFP to select a new 3rd party payment processor vendor who can process unscheduled (ad-hoc) payments like permits, and apply convenience fees so that the town does not incur a revenue loss. Some are Xpress-pay, MunicPAY, Official Payments, PayScan, etc. Since the plan is to use another 3rd party processor who can implement convenience-fee based payments this project should be revenue neutral.

	1 mos.	$6,000.00	$0.00	$0.00	$0.00	$1,000.00
	2 mos.	$6,000 - $10,000	$2,000.00	$0.00	$0.00	$0.00
As long as the IT Dept presence is situated in a series of rooms in the High School, it will appear and remain alienated from the Town staff that are looking for a faster response.		$0.00	$0.00	$0.00	$0.00	$0.00
Citizens Services is an established 'best practice' for any municipality. While citizens and stakeholders want to get info quickly via the web, much of their interactions are requests for services, or guidance through the Town bureaucracy. A Citizen Services role has been credited for many municipal high customer satisfaction studies. Somerville has a model Citizen Services department, and Centric's benchmark study demonstrated that 80% of comparable towns have a similar function.	4 mos.	$0.00	$0.00	$0.00	$0.00	$0.00
Without the right partner as a 3rd party processor, any of the initiatives identified in this project sheet that depend on electronic payments could be at risk. Without a 3rd party processor that can process ad-hoc payments, we will discover more departments handling credit cards or taking card information over the phone which would require a PCI (Payment Card Industry) Security Audit of the Town.	3 mos. w/bids	$0.00	$0.00	$0.00	$0.00	$0.00
		$163,926.00	$142,085.00			

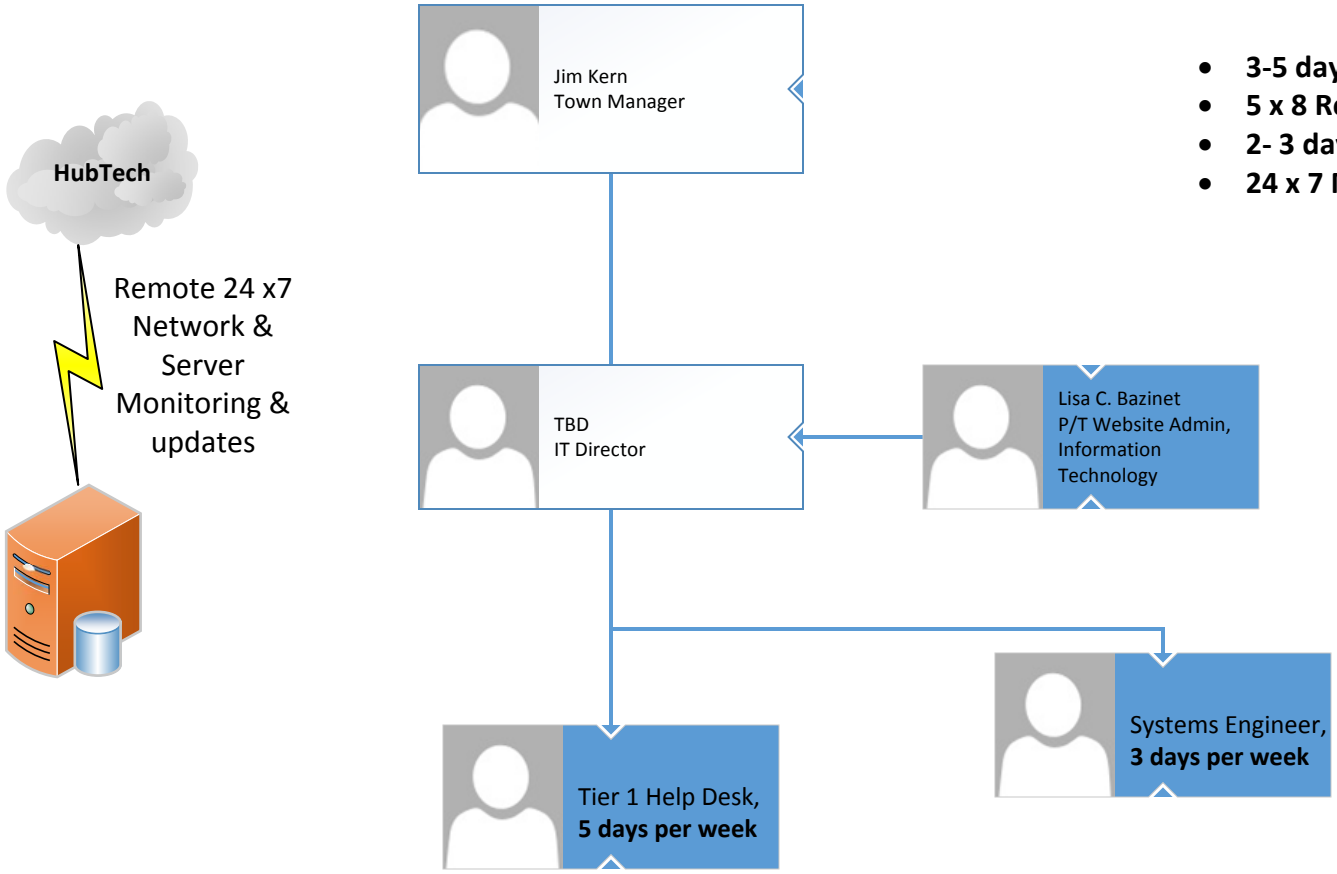
T9 IT Department Reorganization Documents

PROPOSED REORGANIZATION OF DEDHAM INFORMATION TECHNOLOGY DEPARTMENT – CENTRIC RECOMMENDED REORGANIZATION



- **5 days onsite Help Desk**
- **5 days onsite Systems Admin**
- **5 days onsite Applic Specialist**
- **Total Annual Cost $175,746 - $199,258**

TEMPORARY OUTSOURCED - DEDHAM INFORMATION TECHNOLOGY DEPARTMENT – *until Reorganization is complete*



- **3-5 days onsite Help Desk**
- **5 x 8 Remote Help Desk**
- **2- 3 days onsite Systems Engineer**
- **24 x 7 Monitoring & updates**

T10 Current Help Desk Statistics Exhibit

Ticket #	Created By(Email)	Summary	Related to	Create Date	Close Date	Status	Priority	Days Open
592	pmunchbach@dedham-ma.gov	Jason Mamone	ws112007	2014-12-11 @ 09:40 am		open	Med	1
591	mjohnson@dedham-ma.gov	iPhone is not synching with email	ws111015	2014-12-10 @ 02:22 pm	2014-12-11 @ 09:45 am	closed	Med	1
589	rmccarthy@dedham-ma.gov	Laptop	ws108003	2014-12-09 @ 10:11 am	2014-12-09 @ 03:31 pm	closed	Med	1
590	asocci@minlib.net	Main library printers	ws052005	2014-12-09 @ 03:19 pm		open	Med	2
588	weddy@dedham-ma-g0v	Imaging cartridge for Bill Aitken	ws102011	2014-12-08 @ 10:46 am	2014-12-09 @ 03:32 pm	closed	Med	1
587	wralph@dedham-ma.gov	Need computer for presentation in Lowewr Conference Room	ws106005	2014-12-08 @ 10:01 am	2014-12-08 @ 10:06 am	closed	Med	1
586	swebster@dedham-ma.gov	New Computer with updated Word	ws108014	2014-12-01 @ 10:16 am	2014-12-01 @ 10:41 am	closed	Med	1
585	lconnell@dedham-ma.gov	Infected staff computer	ws052001	2014-11-28 @ 10:41 am		open	Med	13
584	vbarnes@dedham-ma.gov	Place short cut on desktop and unshare outlook calendar		2014-11-26 @ 11:17 am		open	Med	15
583	vbarnes@dedham-ma.gov	Reconnect Epson printer to Dell laptop		2014-11-25 @ 03:21 pm		open	Med	16
582	vbarnes@dedham-ma.gov	Change name for Lisa Bizanet on land line		2014-11-25 @ 02:46 pm		open	Med	16
581	vbarnes@dedham-ma.gov	Changed Telephone System for Maureen new location COA		2014-11-25 @ 02:45 pm		open	Med	16
580	vbarnes@dedham-ma.gov	Placed Maureen in COA Group and set-up Outlook on her new location		2014-11-25 @ 02:43 pm		open	High	16
579	vbarnes@dedham-ma.gov	Readded Zimbra sets in IPhone for Robert Crawley		2014-11-25 @ 02:41 pm		open	High	16
578	vbarnes@dedham-ma.gov	Recreated new profie for Robert Blaney		2014-11-25 @ 02:40 pm		open	High	16
577	vbarnes@dedham-ma.gov	Added Enterprise mode to Interenet Explorer 11 and placed URL in safe mode		2014-11-25 @ 02:38 pm		open	High	16
576	vbarnes@dedham-ma.gov	Create a new profile for Lisa Bazinet in folders, outlook and scanner		2014-11-25 @ 02:36 pm		open	High	16
575	jcrowley@minlib.net	public computer	ws053013	2014-11-25 @ 01:34 pm		open	Med	16
574	jcrowley@minlib.net	outlook has stopped working	ws053013	2014-11-25 @ 01:28 pm		open	Med	16

Count	**19**

Average Closure rate per day	**0.29**	**Average Open Days**	**10.32**
		Average Tickets per Day	**1.12**

S-1 DPS Recommended IT Project List

(Abbreviated for print. Refer to the digital copy proved to the Town/Schools for additional detail.)

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
Phase 1 - March 2015 - November 2015							
1	Critical	**Chromebook 1:1 in Middle School**	This is confirmation of a project already proposed in the capital plan. DPS has benefited from the 1:1 iPad program at the High School. After a thorough review by DPS stakeholders, it has been determined that Chromebooks are now the best option for DPS middle students.	Recommended to start project in 2016. Continue the piloting and preparation to provide all Dedham Middle School students and teachers with a Chromebook at the start of the 2015-16 school year. **Refer to Educational Technology – Computer Refresh - in the current DPS capital request which includes the Chromebooks initiative**	High	6 mos.	$300,060.00
2	Critical	**Explore and pilot video management and learning object repository options**	From the DPS IT Strategic Plan - *Video Furnace has been in place over eight years and is no longer supported or covered by warranty. We will investigate the feasibility of hosting on site video distribution versus using a content aggregator service.* Video creation, access, distribution, integration and management has changed dramatically over the past few years with the emergence of You Tube; subscription and open education resources like Discovery, Kahn Academy and Learn Zillion; and cloud-based services. Also, recognize that cable TV is no longer a preferred means of accessing video for parents or students. (A recent survey of DPS parents indicated that of 338 respondents, only 9 indicated the Dedham TV channels are their most preferred method to access information and 81% indicated they are either the least preferred of never used.) It is clear that the Internet has become the preferred way to access information and videos and future planning and investments should reflect that.	Recommended to start project in 2016. Strategically reevaluate what video means for DPS today and over the next three years. Consider factors including: instructional design, Google platform, open educational resrouces (OER,) the Learning Registry and new interoperability standards. Pilot one or more solutions during 2016. Also, explore how best to collaborate with DedhamTV and leverage the funding that should be geared toward education. **Refer to - Video Distribution Replacement - the current DPS capital request.**	High	4 mos.	$140,000.00
3	Critical	**4i's Project (Information Integration Improvement Initiative)**	This is a DPS project currently underway to: *Provide consistent and accurate information through improved process and workflows for gathering and updating data and improve access to data through better reporting which will lead to improved efficiencies, more communication and better decision making. There will be tiered implementation based on an iterative process involving discovery, goal setting, implementation and assessment.*	Recommended to start project as soon as possible. As part of this effort, research the latest information on interoperability standards such as Common Eduction Data Standards (CEDS.) Also, investigate solution providers such as Level Data and Clever. While not specific to interoperability, DPS should also pursue single-sign on. Finally, this is closely related to this project - Assessments and Data Analytics - for Students and Educators First.	High	8 mos.	No capital funding requested by DPS. The estimated $25,000 to support this will need to come from operating funds.
4	Critical	**Reconfigure & train on New World LOGOS ERP system**					
Phase 2 - December 2015 - June 2016							
5	Critical	**New World System LOGOS HR System Pilot**					

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
6	Critical	**Implement distributed purchase orders & centralized A/P in New World LOGOS system.**					
7	Critical	**Develop a Comprehensive Written Information Security Program (WISP) (See Town Project -- Data Security Compliance)**	We performed a review of DPS personal information security based on 201 CMR 17.00: Standards for the Protection of Personal Information of Resident of the Commonwealth. An official from the Commonwealth Executive Office of Education indicated that - "201 CMR 17.00 in pursuant of M.G.L. c. 93H is currently the tightest regulation that comes out of Massachusetts. It encapsulates not only HIPPA, FIPA and FERPA regulations, it goes beyond it. Implementation is difficult but can be done." DPS is currently doing about as well as any school district in this regard. However, given the regulations and increasing security threats, DPS must develop an updated policy and program and invest even further.	Recommended to start project in 2016. Develop a Comprehensive Written Information Security Program (WISP.) http://www.mass.gov/ocabr/docs/idtheft/sec-plan-smallbiz-guide.pdf DPS in conjunction with the Town of Dedham should seek additional guidance and funding from the Commonwealth. DPS should also collaborate with The Education Collaborative (TEC) to engage the Department of Elementary and Secondary Education and the Executive Office of Education. TEC districts can also collaborate to identify the most affordable and effective solutions.	High	6 mos.	This is a considerable effort that will require at least 1 FTE worth of effort for 2-3 months.
8	Medium	**Develop a more comprehensive help desk - ticket management process**	DPS help desk and technology support is good. An application called TSS from SmartEdu has been adequate to manage an increasing workload with the introduction of the 1:1 program and other technologies. However, the Technology Team can benefit from a more comprehensive system that will enable better end user input and self-service as well as support analytics to manage a growing and dynamic technology ecosystem. Ideally, the new system will also support asset tracking and performance management as well.	Recommended to start project in 2017. In combination with the Asset Tracking/Performance Management Project, research solutions and either select from Comm-Buys or issue an RFP to identify the best solution. Use key performance indicators (KPI's) from the system to model how other DPS departments can use data to better manage resources and target improvements. Refer to this link for an example of the Town of Brookline's IT Performance/Workload KPI Dashboard - http://www.brooklinema.gov/917/Department-Dashboard. .	Medium	4 mos.	Nothing if TSS can be better utilized. Approx. $3,000.00 to $5,000.00 if a new application is required.
9	Medium	**Improve Asset and Performance Management of all Hardware and Software**	DPS currently does an adequate job of tracking technology inventory including hardware and software. However the process is too episodic and labor intensive.	Recommended to start project in 2017. Set a goal of having automated tracking and performing of all key technology hardware and software assets by 2017. Start by reviewing current assets and identifying which can be identified and tracked automatically as well which can generate usage/performance reports. Explore expanded deployment of the Paessler/PRTG network monitoring software. Ultimately, work toward the ability to monitor usage of instructional applications as a critical part of measuring ultimate effectiveness.	Medium	4 mos.	Approximately $3,000.00 per year.
10	Low	**Rethink printer and copier strategy**	We rank this as a low priority as printing and copier budgets are reasonably managed today by DPS leveraging outside support. DPS should however consider the role of print and paper from a strategic perspective as part of the Strategic Planning process. There will always be a place for some printed and manipulative materials in K-12, especially for younger children. The challenge for DPS is to identify when it is pedagogically necessary and appropriate from a cost, environmental, and data management standpoint.	Recommended to start project in 2017. Engage one or more reliable firms who understand K-12 education to provide a no-cost assessment of print/copier usage and recommend a new program that will reduce consumption and costs.	Low	4 mos.	None

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
Phase 3 - July 2016 - June 2017							
11	Critical	**New World System LOGOS Payroll**					
12	Critical	**Network redundancy and reliability (See recommended joint town/school projects Create Core Network Redundancy and Fiber Legs to Turn Hub-spoke Topology into a Ring.)**	DPS has invested wisely in a robust network to support bandwidth needs for the next 3-5 years. DPS has used E-Rate effectively to date to build its network. However, the Town and the Schools are dependent on a single, centralized core switch without any redundancy which means a single point of failure for Internet access. A secondary and standby core switch is needed to ensure that any failure of the main core switch does not take down the entire Town network. Additionally, the Town and Schools have a hub and spoke network topology that is s less efficient than a ring/web and introduces another single point of failure. This calls for a new fiber optic leg to be strung between each spoke and its neighbors to create a full ring architecture.	Recommended to start project in 2017. Convene key stakeholders from the Town, Schools, and Library to consider different scenarios in order to design the best service and lowest cost option. Factors to be iteratively considered include: network design, network provider(s), network management, new technologies, funding scenarios, new sites (e.g., ECEC, Town Hall, Police, former TEC site) and timing of the factors, etc. **Refer to recommended joint town/school projects: Create Core Network Redundancy and Fiber Legs to Turn Hub-spoke Topology into a Ring.**	High	24 mos.	See Town capital budget request.
13	High	**VMWare Upgrade / SAN Storage Hardware Refresh - 2017**	This is confirmation of a project already proposed in the capital plan. DPS uses applications from VMware, Inc. to provide virtualization of its server infrastructure that supports a software-defined virtual local area networks (VLANs) to segment and control network traffic. This standard practice reduces complexity and enables more flexible, agile service delivery ..	Recommended to start project in 2017. Implement the VMWare Upgrade / SAN Storage Hardware Refresh but also consider how much can be migrated to the cloud.	High	3 mos.	$120,000.00
14	Medium	**Pilot a New Instructional/Learning Management Platform**	DPS has provided tools to enable teachers to access, digitize and share materials with students and each other The primary platform for this is currently Blackboard Engage (formerly Edline) which is a combination website and communication platform that can also support some classroom management, quiz and homework distribution, etc. Engage is not a best of breed web design or instructional/learning management platform and it is imperative that DPS explore other options. Superintendent Welch also recognized the need for core curriculum, sample lessons, and teacher resources to be more accessible. K-12 learning platforms (aka learning or instructional management systems) have advanced considerably over the past several years and so has teacher adoption. The best platforms allow districts to develop and map curriculum; teachers to design and deliver lessons and assessments; and, for students to access learning and assessments anytime. Learning platforms will be the backbone of a next generation learning strategy. .	Recommended to start project in 2017. There are many solutions to carefully consider. DPS should survey area school districts to gauge their satisfaction to date. DPS should also pilot one or more systems during the 2015-16 school year with the goal of selecting a system by 2017. Several platforms such as Edmodo and Schoology even have free versions. Google Classroom is also offering some free, baseline LMS functionality that should be considered as it leverages Google for Education Apps and may scale in the future. Whatever solution is selcted must comply with IMS Common Cartridge and Learning Tools Interoperability (LTI) standards.	Medium	12 mos.	$20,000 to $30,000 for implementation and approximately $8 per student or $24,000.00 per year.

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
15	High	**Assessments and Data Analytics - for Students and Educators First**	In the "accountability" era of data analytics over the past decade, data has been collected and analyzed primarily for longitudinal purposes to measure schools and systems. The next decade must focus less on "testing" and more on using technology to deliver adaptive assessments and relevant data that inform students and teachers. This starts with enabling teachers to access or create high-quality assessment items These items may also be embedded in online learning programs or instructional games. Today's assessment providers/systems should provide immediate, adaptive feedback to students as well as formative progress reporting to teachers and parents. Data analytics systems can collect data from multiple sources to provide broader and deeper insights into learning effectiveness and efficiency. The new approach will not only support accountability for adequate and equitable student progress but will also provide students and teachers the insights and recommendations they need to achieve the progress.	Recommended to start project in 2017. Start by auditing all current assessment sources to determine if they provide teachers and students timely and useful feedback in a digital format. Then research and pilot data analytics systems that can capture unstructured data through API's from various systems (assessments, SIS, behavior, IEP, etc.) and report information in a user-friendly manner. (see 4I's project above.) There are some exciting new products on the market but there are currently no silver bullets. (https://www.edsurge.com/products/school-operations/data-systems) Take a "lean start-up" approach by piloting systems in short cycles of weeks and migrating to the best solutions. Issue an RFP that includes key requirements for data certification and interoperability as well as reporting and analytics. Investigate the Ed-Fi Implementation Suite. As part of this project. also explore single-sign on solutions, Common Eduction Data Standards (CEDS), and application program interefaces (API's) that will support two way exchange of information based on IMS standards including Common Cartridge, Learning Tools Interoperability (LTI), Question and Test Interoperability (QTI,) etc.	High	12 mos.	Approx. $20,000 for initial implementation and $5,000 to $10,000 per year thereafter
16	High	**Document Management**	Despite significant digitization of data and improved workflow with systems like the PowerSchool SIS, there is still too much paperwork and inefficient processing.	Recommended to start project in 2017. In collaboration with the Town, issue an RFP for a document management system.	High	18 mos.	See estimate in the Town project tab.
17	Medium	**Enable Internet access for all students throughout Dedham**	The Dedham community has shown a strong commitment to provide students with equitable access to devices ahead of most communities in the Commonwealth. Dedham can build on that success by committing to provide every family with affordable (or no cost) broadband Internet access. Most families already have sufficient broadband access at home with Wi-Fi and mobile access - at least via a smartphone. Dedham can commit to close the remaining gap for good. This is also an oppotunity for the Town of Dedham to reflect on how expanded Internet access can support all of their citizen's and economic development.	Recommended to start project in 2017. Start by insuring that all eligible families are aware off the Internet Essentials program from Comcast that provides home Internet service for only $9.95 a month. Look to further support families that cannot afford that service. In select cases of very high need (e.g., homeless, highly-mobile,) provide students with MiFi cards. Also, continue to explore opportunities to provide free or low-cost wireless access to students in Dedham. To date, publicly-provided networks have proven difficult to sustain but opportunities for public/private partnerships should continuously be explored - especially as new technologies emerge.	Medium	TBD	Should only be pursued if cost neutral based on provider and community support.
Phase 4 - July 2017 - June 2019							
18	Medium	**Develop a strategy to increase device access at the Elementary Schools**	Starting in 2016, all DPS 6-12 students will have dedicated devices (aka 1:1) with MS access being phased in. DPS Elementary schools currently share one iPad cart which is generally in high demand and can be difficult to access in larger schools. Greenlodge, Oakdale and Riverdale also have laptop carts.	Recommended to start project in 2017. Based on the elementary educational goals and designs developed during the Strategic Planning process, identify the device access required for students at each grade level to support equitable learning at school and at home. As the High School migrates to the Chromebook, iPads can be redistributed to the elementary schools but an infusion of additional devices will likely be needed in the meantime.	Medium	12 mos.	Approximately $210,000 per year.

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
19	High	**Pilot new interactive projector/display solutions to replace SmartBoards.**	DPS has invested wisely in digital projectors and interactive whiteboards (IWB or SmartBoards) over the past 5+ years. To date, IWB's have supported digitization of curriculum and critical instructional shifts including improved student engagement, interactive lessons, differentiated instruction and learning center units. However, with the rollout of 1:1 devices and the high total cost IWB's, DPS should rethink its projector/display strategy. With 1:1 devices, each student essentially has their own interactive digital display and displays can be shared and projected with low cost tools like Hapara, LearnPod, Chromecast, Apple TV, and Miracast.	Recommended to start project in 2017. DPS is already testing alternative projector models such the Epson Brightlink that hold the promise of lower total cost of ownership. As part of the strategic planning process, DPS should identify next generation learning environments appropriate for each grade level/subject as well as libraries, learning commons, and maker spaces. The new models will likely include more distributed display approaches instead of simply a board in the front of the classroom. Different interactive projection/display solutions should then be piloted. Significant additional investments in current IWB/SmartBoard models is discouraged. **Refer to *Interactive Boards/Projector Updates - Secondary in 2018 and Elementary in 2019* in the current DPS Capital Plan**	High	6 mos.	$75,000 for secondary schools in 2018 and $75,000 for elementary schools in 2019.
20	Medium	**Take a fresh look at classroom and library technology requirements based on the new Strategic Plan and Maker Space pilots.**	DPS has invested significantly and wisely in classroom and library technologies to date that have supported the DPS migration to next generation teaching and learning. While DPS has realized considerable momentum, more significant, breakthrough improvements utilizing technology still lie ahead. One popular model of instructional technology integration represents four-levels - Substitution, Augmentation, Modification, Redefinition (SAMR.) DPS is in a position to move toward the M and R levels. DPS also has several exciting Maker Space projects underway that will help to inform this process.	Recommended to start project in 2017. Start by designing the best learning environments for students including defining resources. Use design thinking to think beyond current infrastructure (e.g. SmartBoards, desktop computers, Elmo's, etc.) Create the new design based at a process/function level such as capture, share, collaborate, etc. Involve teachers and students to map the best current and emerging technologies to meet the teaching and learning requirements. For example, the camera on a tablet or Smartphone might be a cheaper and simpler tool for capturing images. Working collaboratively in small groups on a Google Doc on devices may be more effective than projecting a document. Based on the exercise, establish an ideal design by level and develop a migration strategy from the current standards. Update the migration plan annually to take advantage of new products, features, and lower cost factors.	High	18 mos.	Costs will depend on the design but DPS can start to benefit by reusing existing furniture and equipment with additional costs of $3,000 to $5,000 per classroom.
21	Medium	**Transition to Chromebook (or better devices) in grades 9-12**	All DPS Middle School students will have Chromebooks starting in 2015-16. That device is also well suited for grades 9-12 so students should be provided similar (or better) devices as they matriculate. As devices increasingly become more multi-function (e.g., touch screen, cameras, detachable keyboards, etc.,) device specificity will become less relevant. In fact, DPS should allow students to increasingly use devices they personally own including smartphones.	Recommended to start project in 2017. Based on the high school educational goals and designs developed during the Strategic Planning process, plan and budget for a model that provides for each student to have a high-quality, dedicated computing device. Estimate based on current costs and product offerings but adjust at least annually as the market will remain very dynamic.	High	24 mos.	$400,000.00
22	Low	**Pilot alternatives to teacher desktops**	Dedham has done a good job providing teachers with dedicated desktop computers as well as iPads for high school teachers and planned Chromebooks for middle school teachers. The challenge is that the desktop computers do not effectively support the mobility required for 21st century instruction and can anchor teachers to a location in the classroom.	Recommended to start project in 2017. As desktop computers are due for a refresh, encourage teachers to choose the technology configuration that best allows them to meet the mobile teaching and learning design in their school. As device functionalities expand and merge, this might include just a tablet, Chromebook or a similar device. Teachers should also be allowed to use personal devices and be provided with a stipend if it results in a lower cost for the district.	Medium	6 mos.	Net cost should be zero as this would be an alternative to existing refresh of desktops.

Project #	Priority	Title	Purpose/Rationale	Description	Value	Est. Duration	Estimated Cost (inclusive of HW/SW, Services, support, etc.)
23	Low	**Website Redesign**	The current Blackboard Engage website platform supports district, school and individual teacher websites. It is a source of extensive information but access and navigation is not optimal. Once the Engage LMS features are transferred to a new platform, the District should explore a best of breed website platform.	Recommended to start project in 2017. Research area district solutions and issue an RFP for a new website platform. Carefully consider the role of the websites in the evolving social media ecosystem.	Medium	4 mos.	Approximately $5,000.00 for one time migration and $6,000.00 per year after that.
24	High	**Backup System /Disaster Recovery Hardware Update - 2018**	This is confirmation of a project already proposed in the capital plan. We support this project as the network/system has become mission critical to DPS.	Recommended to start project in 2018. Implement the Backup System /Disaster Recovery Hardware Update but also consider the benefits of migrating to the cloud.	High	4 mos.	$70,000.00
25	High	**Wireless Update – all schools ($150,000 total, $75k after E-rate) - 2019**	This is confirmation of a project already proposed in the capital plan. DPS has achieved 100% secured wireless access across all buildings with a dedicated wireless access point (WAP) in almost every classroom. Upgrades to network access control (NAC) end point security has been achieved at Avery Elementary School and the High School with the goal of expanding that to all schools in order to manage access of devices not managed by DPS which will increase as students and staff increasingly bring their own devices to support digital learning.	Recommended to start project in 2019. It is reasonable to assume that key hardware and software elements required to provide sufficient, secure and reliable mobile access will need to be replaced or upgraded by 2019. In the process, DPS should evaluate the cost/benefit of turn-key managed Wi-Fi services that are now eligible for E-Rate funding under the recent E-Rate Modernization program.	High	12 mos.	$75,000.00 (after E-Rate discount)

S-2 DPS Technology Team Roles and Responsibilities

Summarized from DPS sources

Technology Director – Dr. Don Langenhorst

- Participates as a member for the core District Leadership team and leads or serves on several improvement committees
- Supervision and evaluation of teaching staff including six library media specialists (K-12) and nine technology related teachers (computer, business, video and engineering) at the secondary schools.
- Works with administration and other department chairs to coordinate curriculum, school and classroom issues.
- Works closely with administration and communicates with all staff about technology related needs.
- Additional responsibilities include planning, liaison, budgeting, applying for grants and funds, and managing overall software, hardware, and Internet access. The Technology Director manages the Technology Team which consists of the Administrative Database Specialist, Network Administrator, Help Desk, Technician and Technology Integrator.

Administrative Database Specialist – Mike Dewar

- Manages the Student Information System (SIS) – PowerSchool - which entails the maintenance of accurate records of enrollment, attendance, grades, report cards, transcripts and other student information as well as student and staff scheduling for the district. The SIS is the primary source of data for the creation and submission data reporting to state and federal agencies including the student (SIMS, SCS) and staff (EPIMS) submissions.
- Supports reporting and analysis requests from DPS administration.
- Also supports systems for Food Services, Nurses, Special Education, Library, other applications (see below.)
- Monitors database security to maintain privacy of information as required by FERPA and HIPPA. Only users who are deemed to have a legitimate educational interest in student data are granted access to our student data.
- Scope of systems supported: PowerSchool, PowerTeacher, PowerSchool Student-Parent Portal, eSped Special Education application, Nutrikids Lunch POS, HealthOffice Nurse's software, Blackboard Connect, Personnel Database (MS Access), ChildCare Database, High School and Middle School Student Activity Accounts, SIMS Stat, Naviance college admission software, Bus Card Creator, QuickBooks, New World, and Harper's Payroll.

Network Administrator – John Spears

- Responsible for the designing, organizing, modifying, installing, supporting and maintaining of the server hardware and the software systems and directory service that make up the computer network as well as the active data network, converged infrastructure and related networking equipment.
- Performs the installation, configuration, support and maintenance of the school systems routers, switches, LANs, WANs, network segments, Internet, intranet, and wireless systems hardware and software.
- Administers schools systems servers, firewalls, server software deployment and updates, security updates, patches, antivirus and system backups.
- Overall administration, configuration and maintenance of the school systems Directory Services System; Active Directory.
- Scope of technology supported:
    - This position supports over 650 current and legacy user accounts, over 250 security and distribution groups, over 2500 individual and group shared drives and folders each with its own set of permission and rules. In addition this position is primarily responsible for the disaster recovery plan (DRP) including coordination of the backup systems that include the EMC Networker, EMC Data Domain and legacy backup systems.
    - Applications to support network operations include: Active Directory, Group Policy, IIS, DNS, DHCP, BulkAdUsers, TeraCopy, Powershell, VMware Vsphere Client, VMware ESXi, EMC Networker, EMC Unisphere, FortiGate Unified Threat Management, FortiAnalyzer, LogMeIn Hamachi, Apache Directory Studio, LDAP Admin, RealVNC, Symantec Endpoint Protection, Altiris Deployment Solution, Insight, Lightspeed Systems Rocket, Stoneware, JAMF Casper, PRTG Network Monitoring, SpiceWorks, Wireshark, WinSCP, WinPcap, Tera Term, Putty, Notepad++, Solarwinds TFTP Server, Aruba Operating System Software, Airwave, PARCC Caching Server.
    - Network hardware: Over 70 HP Procurve switches, 260 Aruba Wireless Access Points, two Fortinet UTM devices, three HP Proliant DL360 G7 servers hosting VMware ESXi and an EMC VNX5300 SAN, which hosts 35 virtual servers using VMware including both active and legacy systems. In addition there are seven physical servers (one in each building) hosts Active Directory, DHCP and DNS.

Lead Help Desk – Iva Conte; and 2 Help Desk Technicians – Joanne Rasmussen and Tim Bowen

- The full time “Lead” position The Lead Help Desk coordinates, distributes, and supervises the daily help desk needs through the creation and management of a ticketing system that tracks problems and resolutions. This Technology Support System (TSS) stores problem occurrences, solutions, resolutions, hardware inventory by school,

teacher, room, and technician. Tickets are created for each problem occurrence sent via email, phone or in person. The approximate number of tickets recorded during the last school year was 450 for the elementary schools, 350 for the middle school and 300 of the high school.

- The two Help Desk Technicians primarily work at the elementary school level during the school year.
- Monitor TSS and prioritize work orders in order to provide technology assistance to staff with emphasis on timely classroom support.
- Support offered includes a broad range of tasks including installing computers, software, peripherals, document cameras and scanners.
- Perform preventative maintenance on computers and SmartBoards ensuring all are running with current updated software.
- Assist staff with login and e-mail issues as well as other classroom software as needed.
- Maintain accurate hardware and software inventory for buildings assigned ensuring that software is installed conforming to licensing agreements.
- Monitor printer usage to help analyze expenses for the toner budget for the 7 schools.
- Additional activities for the Lead Help Desk person include:
  - Responsible for day-to-day account management for over 540 staff and 2900 students. Including the creation of Active Directory accounts for staff and students. This involves the SIS identification number for LDAP connection to the systems' intranet, mapping of correct drive for network storage access, assigning correct staff logon scripts and assign memberships to correct groups for access to network content. This role performs grade promotion and migration of current students' Active Directory login accounts.
  - Support of Google products including Google Mail, Google Drive, the creation and management of Google accounts for new Staff and Students Grades 6-12: the maintenance of 75 Google Groups, and the addition and deletion of accounts from Google Postini email security and archiving service.
  - Maintains the School Web Interface Blackboard Engage - formerly Edline which requires spreadsheet data manipulation for creation of upload files for all teachers, students, class, and schedule data (approximately 10,000 rows of data and verification for the entire year.)
  - Performs the summer maintenance (uploading files, creating logins, answering questions) for the summer reading program (800 students) and the summer math program (700 students).
  - Handles the promotion and addition of new students to Acuity, the Math and ELA assessment system for students in Grades 3-8. This includes handling data for 1,324 students, creating over 200 classes and class rosters in Acuity and the summer maintenance (uploading files, creating logins, answering questions) for the FASTTmath NextGeneration and FractionNation Programs (960 students; 100 classes).

Districtwide Technician – Bob Tucker

- Responsible for the maintenance and inventory of the schools technology equipment: desktops, laptops, netbooks, Macs, iPads, printers, SMARTBoards, projectors, document cameras, and any associated software. Each summer all computers are reimaged with all necessary updates. Also, each summer 200-300 new computers are received and placed into the appropriate schools as existing computers become obsolete. These new computers need an image created with appropriate software and installed. Netbooks are repaired or rebuilt throughout the year, as many become worn. The technician also creates the configuration profiles for all iPads as well as enrolls each device into the mobile device management system (JAMF).
- Troubleshoots and helps resolves help desk requests particularly those that are hardware based. If the help desk personnel are unable to resolve an issue, the district technician assumes the case (also called Tier 2 support.)
- Works in close coordination with the Lead Help Desk person to support the secondary schools on trouble tickets.
- Other responsibilities include working with outside vendors for warranty repairs, installations and filing insurance claims for iPad damages.

Technology Integrator – Judy Foley

- Individually supports kindergarten through grade 12.
- Responsible for the support and training of teaching staff on instructional technology.
- Supports staff, students and parents to effectively facilitate the implementation of the District's Technology Plan, District Professional Development Plan, and District curriculum and assessment initiatives.
- Promote, assist, and support teachers in the process of integrating technology into the curriculum to meet current state standards, project-based learning strategies, and Internet safety guidelines.
- Design and conduct one-on-one and small group technology trainings, designing, developing, and implementing after-school workshops and credit courses based on staff needs.
- Designing and deliver customized workshops for departments and/or teams.
- Disseminate professional development opportunities and information to the staff.
- Participate in the development of the district professional development plan, team teaching, modeling lessons with various technologies, support and planning with classroom and special area teachers.
- Develop technology tools to enhance the learning process.
- Locate, prepare, and distribute digital resources for instructional activities.

- Demonstrate how technology resources can be used to meet specific curriculum objectives.
- Support teachers in the development and maintenance of web-supported classrooms.
- This position requires knowledge of various devices (iPads, laptops, Netbooks, PCs) as well as a wide range of software and applications.
- Research and evaluate new technologies.
- Provide “just-in-time” support and refer technical matters to appropriate personnel when necessary.
- Provide training and support for teacher component of administrative software packages (e.g., student information system for attendance, gradebook.)
- Facilitate the district's New Teacher Technology Training.
- Conduct student observations, consultations, and assistive technology recommendations, provide staff assistive technology training and support for students.
- Scope of technology supported:
    - All DPS instructional hardware (computers, iPads, SmartBoards, etc.)
    - Teacher use of administrative software
    - All instructional and assessment software

S-3 School Focus Groups Summary

Dedham Public Schools
Summary of Centric Schools Focus Groups 2014-15

Centric had the opportunity to conduct focus groups at each of the Dedham Public Schools. Over 60 educators participated. Centric asked the teachers and principals the following six questions:

1. How are students using technology?
2. How are you using technology in the classroom today?
3. How does technology help you to communicate with parents and engage them in the teaching and learning process?
4. How does technology help you? (hardware, software, lesson planning, assessment, instruction, administration, collaborate, access PD, differentiation, etc.)
5. Are there any key issues or challenges you are facing today related to technology?
6. What is on your Technology "wish list" over the next 5 years?

Centric has summarized the responses below.

How are students using technology?

Elementary/ECEC *(Note: every elementary classroom has a teacher desktop computer and 4 student desktop computers*)

- Software/Apps - FASTTmath, Everyday Math, SmartBoard lessons, Acuity, Stationary Studio, Padlet, Educreations, ChatterPix, Hour of Code, Lexia for RTI, SmartMoves,, Animoto, Raz-Kids, Comic Touch, Tellagami, I-Nigma, Kaywa reader, Photocard, Lexia, ABCya, Word Clouds, Doodle Buddy, Puppet pals, Treasures
- Web resources - Youtube (e.g., Kid President,); Teachers Pay Teachers for lesson plans, worksheets; GoogleEarth;
- Hardware used - SmartBoards, Elmo document camera, iPads (when available)
- Lots of use in library (although tough to focus lesson within 40 mins)
- Math – daily with SmartBoards, Everyday Math
- General Comments – use SmartBoards or Elmo document camera for almost every lesson; "95% of materials are digitized, even if I print out copies for students"

Dedham Middle School

- Laptops, SmartBoards, Blackboard/Edline, computer tech –and math – lessons, journal writing, quiz, auto correct, online tutorials.
- Keep parents informed with class plans, newsletter to parents.
- Re: Blackboard – "we use everything, it's awesome."
- Acuity – once a week formative, benchmark 3 times a year. Used to be more predictive of MCAS/PARCC. Less so recently.
- Video production – Maclab; Music also has Macs in room, Garage Band, iMovie

- Fractionation, FASTTmath (mostly FM is mostly elem but some SPED in MS.) Helpful in terms of math visuals.
- "No question" that Acuity helps. It provides different ways to find solutions.
- No Foreign Language teachers so language lab – 4 stationary and 3 mobile; plus two Math labs

Dedham High School

- "Feels like we are tiptoeing into 21st century"
- Use CAD/CAM and architecture which still require powerful desktop computers (although moving to mobile)
- Would like to expand engineering
- Develop and practice reading and writing; research skills; Internet research skills; find, put into own words, and develop presentations
- Library – research, online databases, websites, ebook access; 4 Nook eReaders, collection of ebooks for iPad checkout; lots of word processing
- Students work across different platforms, PC's and iPads
- Blackboard Engage; research
- Access PowerSchool portal for grades
- Organization
- Creative, use apps, calendars and reminders
- Research; iPads; science simulations, most PC based due to Java and Flash
- Remind App
- Study apps – Quizlet and Study Boost
- Foreign language lab – 28 unit lab; speaking and listening; groupings; Sony Virtuoso Digital Language Lab Technology

How are you using technology in the classroom today?

Elementary/ ECEC

- Centers model
- Connect via skype to other schools, states, countries, virtual field trips
- Access authors and interact via twitter
- Virtual field trip – Plymouth plantation
- Dissected an owl
- Share student work
- Uses iPad app to level books
- Blackboard is used more to communicate with parents

Dedham Middle School

- One teacher uses Planbook app – online agenda, lesson plan, notes, integrate standards. (Why not all in BB?)
- Lesson plans in BB every week, share with department.
- Master teacher development

- Different levels of collaboration between teachers, one indicated little collaboration; another collaborates a lot using BB discussion, group projects; another collaborates using video to group, google docs, to do scripts
- Most indicated they do not personalize instruction but instead keep students in a tight band and provide many options to learn
- Students can access Powergrade.
- Project-based

Dedham High School

- "I cannot imagine without technology. We could never go back."
- Moving in direction of learners versus students; more comfortable with devices; generally not in year 1 but more so in years 2-3
- Combinations; flipped classroom; videos outside of class; kids showing me things; e.g., "could we use Evernote for a lab note book" or "we could make a Google spreadsheet"
- Early stages of blended, flipped
- Lesson design and assessment, lesson plans, research using higher order thinking skills
- Blackboard Engage, look at students work (no paper/printing or toner needed)
- Smartpad
- Some Apple TVs
- Use Vision device management software in labs; broadcast teachers to other screens; remote monitor
- Some teachers using Nearpod with iPads
- Socrative – more interactive versus Nearpod takes over
- One teachers uses Socrative for assessment, then transfers to spreadsheet on z drive, then to PowerSchool

How does technology help you to communicate with parents and engage them in the teaching and learning process?

Elementary/ ECEC

- Each classroom has a website (update once every 2 weeks?)
- SmartBoard during open house
- Email individual parents (but not broadcast)
- Students share video
- Recommend websites, articles for families
- Share pictures
- List curriculum on website
- Scheduling appointments
- Google Classroom

Dedham Middle School

- PowerSchool, email
- MS video production on Blackboard. Would like to do more with Cable station.

Dedham High School

- Parents have access to Edline; emails; Remind app; parents log into grades; library site open to the public access any hand out, grades, no comparison to even a few years ago
- Parent access has exploded. They can access any hand out, grades, no comparison to even a few years ago

How does technology help you? (hardware, software, lesson planning, assessment, instruction, administration, collaborate, access PD, differentiation, etc.)

Elementary/ ECEC

- Collaboration – work with other colleagues; GoogleDocs; GoogleDrive; use iPads as camera; share on DropBox
- Instruction – use SmartBoard and Elmo where I used to use transparencies
- Productivity - manage report cards; IEP's; more accessible, do not need to lug stuff home; grades in cloud
- Use drop box a lot

Dedham Middle School

- Google Docs very useful, collaborate with other teachers, make forms to monitor progress,
- Demo lesson using NetOps/Vision – "I love Vision"
- iPad, we have one at home, ed apps, iPad good for elem and sped; I like Chromebooks for MS
- Excited about 1:1; does not care what the device is, just excited to get started.
- BYOD – on an as needed basis only. Like to provide teachers consistency.
- Looks like new history textbooks coming online
- RE: Textbooks, different usage. Some only use text for homework, reinforcement.

Dedham High School

- Keep students on task; apps to write on things; grade digitally
- Use Blackboard to manage advisory activities – once a month for four years
- Collaboration – work with other librarians; Google Docs
- Mobile and accessible from anywhere – zdrive
- "Productivity multiplier"
- Blackboard – assign electronically
- Goal is to be more self-directed – independent learners, take iPad home; just starting
- Allow students with disabilities to access curriculum at different pace; writing; Google drive/docs; Learning Ally; Read to Go; Inspiration; Dragon Speak (but difficult)
- Students are more self-directed; learning but not all there
- Allows more student to student collaboration (e.g., AP class assignment over break, poetry, partners; Google Docs)
- Google Classroom; English teacher doc; students complete; submit; individual feedback
- Blackboard improved; better drive/drop box integration; but Google Classroom great for English teachers

- Depends on teacher; what works best
- Compete when bringing Special Needs kids back into districts from Landmark, Carrol; Mirror Match

Are there any key issues or challenges you are facing today related to technology?

Elementary/ ECEC

- No comprehensive scope and sequence curriculum for first year teachers to build from
- Issues accessing FASTTmath and Scholastic for some parents - performance issues due proxy in through school
- Flash-based content not accessible on iPad
- Teachers must send a paper check list daily related to the Everyday Math assessment
- While not often, challenging when Internet down due to the dependence
- Would like to use iPads more if available
- Comment that "nothing personal can be shared via email." *Note - that probably needs to be clarified.*
- Parents stratified – some prefer digital and some paper
- Keyboarding
- Concerns about equitable access at home
- Acuity is awful. Ditch acuity.
- ECEC – More SmartBoards and repair ones that do not work
- ECEC – improve WiFi coverage (Note: completed by Tech Team since Focus Group)
- ECEC – no time to learn anything new

Dedham Middle School

- One issue – cost of online license in addition to textbook. (e.g., Everyday Math charges for books, teacher and students logins)
- Research issue – if kids do not have computers at home, limited to school time.
- Still need to collaborate, all kids texting on iPhones, issue – writing skills
- Parents cannot keep up with new communications.

Dedham High School

- A bit of a battle; some students are not coming prepared, responsibility; devices not charged. One teacher thought freshman are more responsible.
- Wireless access issues
- One teacher had a challenge with Homework Hand in at first (but overall Blackboard is a huge help.)
- Java and Flash issue on iPads
- Too often students do not know password, etc.
- For some teachers it is hard and challenging to "jump in with two feet"; need to hold your nose and jump; trust the kids
- Teachers need to be more confident in not knowing; not being the source
- More like a tour guide than an imparter of content

- Tech needs to be effectively incorporated; use regularly; pick a few things

What is on your Technology "wish list" over the next 5 years?

Elementary/ECEC

- Provide each teacher with an iPad
- Standardize on Google Drive instead of the Z drive
- Would like help on using Center Model (station rotation) better. Currently, students generally use computers after they have finished early. Challenge – 21 students with 10 on or in process of IEP. Pull out/drop in Special Ed support is targeted so whole class cannot benefit. Too many students need support at stations.)
- In general, better modeling and PD on Centers model; time is a challenge.
- Fewer math and reading groups dependent on paper and pencil.
- 1:1 iPad - at least in Grades 3,4,5
- ECEC – SmartBoards, laptops, iPads, listening centers, cloud storage space, color printers, scanners, Elmos, Apps, audio support, Class Dojo, Noodle, durable cases, new PA system
- Create a Maker Space in the library
- Project directly from devices to screens using AppleTV, Chromecast, Miracast
- Access to more paid apps
- Game-based software. Learning object repository
- Digital portfolio
- "Things have changed – five years ago, we used to wish for bulbs for overhead projectors

Dedham Middle School

- All ES with iPads and 1:1 on all levels
- Macs replace PCs – like programs better – iMovie
- Projector, SmartBoard
- Touch displays
- Replace all books
- More apps
- Safer way of moving devices, packaging, more durable
- All assessment and homework online
- Twitter as a means of communication; but one thought "it can be dangerous"
- Students change faster. Kids do not use Facebook. Instagram. Already a gen gap between 8th and 10th grade.

Dedham High School

- more advanced printing for engineering, 3D printing, monitors
- digital textbooks
- larger screens
- keyboards
- every classroom should have a more comprehensive standard set with Elmo, SmartBoard
- Whatever's next (Judy and others due a good job of previewing, access Edtech and Edutopia)

S-4 DPS Parent/Community Focus Group Summary

Dedham Public Schools
Summary of Centric Parent/Community Focus Group - January, 2015

Centric had the opportunity to conduct a parent/community focus group. Centric has summarized the responses below.

Communication

How do you prefer to receive information from the Dedham Public Schools in general?

- Email, Facebook (from other parents, PTO), Twitter, Website, monthly newsletter from principal, phone call, "I prefer paper"
- Website need to be more robust, timely
- Would like reminders closer to events
- I want information pushed to me
- At DHS – Parent connection page
- Would prefer more mobile
- Texting is better than robocall; would need to opt in
- Different preferred methods, want multiple options for parents

If you are a parent of a DPS student, how do you access information specific to your student(s)?

- Weekly push on 6-12 via PowerSchool parent portal
- One parent -- not a fan of PowerSchool , I do not look at it
- I want push instead of just a link
- I want more positive communication
- My child is at ECEC and I get nothing
- I'd prefer more written rather than data point
- Hard copy at report card time
- Two parents who are also teachers reflected on challenge of making time for effective communication, can streamline processes

How do you prefer to share information (e.g., registrations, updates, fees) with the Dedham Public Schools? (e.g., Parent Portal; Unipay; etc.)

- Online, Unipay for sports was difficult
- Had to put all info in for each test
- Nurse still likes pink card
- Would like easier way to have universal login and updates
- PowerSchool - some issue with parents not knowing how to access

What is on your "wish list" for how Dedham Public Schools can best engage the parents and the community?

- More on tech for parents (computer classes and info) , free workshops, ELL support

- Personalizing is very important, what is the purpose

Learning and Assessment

How has technology helped DPS students? (more meaningful learning, self-directed, more time, more practice, faster feedback, more engaged, better organization etc.)

- Learning at finger tips
- Organization and access – student forgot math book but got it online
- Town has supported; moved quickly, have been responsive
- So far – age appropriate, not replacing authentic teaching and learning and daughter can independently access
- Like iPad, netbooks

What is on your "wishlist" for teaching and learning technologies over the next 3 to 5 years (devices, access, software, apps, etc.)?

- Staff training
- I have not been as impressed by SmartBoard,
- Training and integration
- Annoyed when I hear it is a union issue
- SPED – equity of access; tech is a great equalizer; use it effectively
- Needs to be across the board
- Children love coding and 3d design, allow kids to dig into areas, lab with 3d printers and maker bots
- Teachers share among each other; everything is done digitally
- Should not be reinventing the wheel all of the time, share the best
- Differentiate
- CAST universal design
- Blended model
- Would prefer paper and pencil
- More collaborative and less competitive
- I love to look at comments on Google Docs
- Laptops
- Daughter more online in HS - flipped , more for home
- App store open issue
- Better case
- Elementary typing

What issues or concerns do you have related to educational technology in Dedham Public Schools? (e.g., access, appropriate use, equity, security, safety, distraction)

- Could not logon, go back to paper and pencil; if tech is down; what is work around
- Big fear– environment, culture – make sure culture includes collaboration, etc.
- All about balance – Lexia should be a tool and not default method of instruction
- Distraction

- How to measure that kids are receiving balanced instruction
- Measure over use
- Safety and privacy

S-5 School Surveys Summary – Staff, Parent/Community, Students

DPS Staff IT Survey Summary - December 2014 – January 2015

Responses – 157

Please indicate your role in the Dedham Public Schools.		
Answer Options	**Response Percent**	**Response Count**
Administrator	5.2%	8
Teacher	71.0%	110
Instructional Aid	3.9%	6
Support Staff (E.G. nurse, OT, PT)	9.0%	14
Other	11.0%	17

Where do you work?		
Answer Options	**Response Percent**	**Response Count**
Early Childhood Education Center	8.9%	14
An Elementary School	31.8%	50
Dedham Middle School	24.2%	38
Dedham High School	33.8%	53
Administrative Office	3.2%	5

Subjects I teach or supervise (please check all that apply).		
Answer Options	**Response Percent**	**Response Count**
ELA	52.7%	68
Math	45.0%	58
Science	38.8%	50
Social Studies	36.4%	47
Technology	23.3%	30
Arts/Music	8.5%	11
Wellness	7.8%	10
Library Media	7.0%	9
Support Staff	14.7%	19
Other (please specify)		37

Statement	strongly agree or agree - %
Technology enables a great variety of instructional methods.	92%

Technology allows for more authentic learning opportunities.	76%
Technology supports better connections to learning styles.	81%
Technology allows students to express their learning in more meaningful ways.	68%
Technology helps teachers to better assess and analyze student learning.	66%
Technology increases student learning time.	49%
Technology enables students to create more products (presentations, projects, videos, etc).	88%
Technology provides more writing opportunities.	52%
Technology supports the access to more information.	98%
Technology supports the access to more current information.	97%
Technology provided by the Dedham Public Schools offers equitable access for students.	82%
The use of technology increase student engagement.	70%
The use of technology increases students' responsibility for their own learning.	46%
Technology helps me communicate and collaborate with students.	62%
Technology helps me communicate and collaborate with parents which engages the parent in their child's learning.	72%
Technology is **distracting** to student learning.	32%
There is adequate support for technology integration.	63%
Internet connectivity at school is adequate for student and teacher needs.	70%
Technology helps me to perform administrative tasks more efficiently.	87%
Technology helps me to collaborate with colleagues.	85%
Technology helps me to plan my professional objectives and access professional learning resources.	84%
Use of technology increases students preparedness for life beyond Dedham Public Schools.	87%
I feel comfortable integrating technology in my classroom.	66%

During the average school day, my students use technology approximately:

Answer Options	none	1 hour	2 hours	3 hours	4 hours	more than 4 hours	N/A
	9	52	27	8	0	9	43

During the average school day, my students use technology approximately:

Answer Options	none	1 hour	2 hours	3 hours	4 hours	more than 4 hours
	0	33	29	38	18	34

I use technology to: (Check all that apply).

Answer Options	Response Percent	Response Count
Collect Data	75.5%	114

Analyze Data	50.3%	76
Report Data	62.3%	94
Access articles/books using a digital reader/tablet	54.3%	82
Use mobile instructional apps	41.7%	63
Use mobile administrative apps	21.9%	33
Create presentations	72.2%	109
Use text type technology (e.g. Twitter, Remind) to send messages to students and parents	14.6%	22
Use Twitter or blogs to stay informed	15.9%	24
Create videos or audio recordings of my lectures or lessons for students to watch/listen to	15.9%	24
Develop online quizzes for formative assessment	29.1%	44
Stay organized (e.g. calendars, reminders)	76.2%	115
Collaborate (e.g. Google Drive/Docs, Evernote, email)	86.1%	130
Other (please specify)		13

Students use technology to: (Check all that apply).

Answer Options	Response Percent	Response Count
Stay organized (e.g. calendars, reminders)	36.0%	49
Research	69.9%	95
Collect, Analyze and Report Data	33.8%	46
Study	47.8%	65
Take notes	44.1%	60
Internet/web activities	79.4%	108
Use specialized apps	59.6%	81
Create (e.g. projects, presentations)	68.4%	93
Access the library media center databases	49.3%	67
Communicate (e.g. Instagram, Snapchat, Twitter, Facebook, email)	39.7%	54
Collaborate (e.g. Google Drive/Docs, Evernote, email)	42.6%	58
Use Twitter or blogs to stay informed	11.8%	16
Other (please specify)		15

How do you collect student work? (Check all that apply).

Answer Options	Response Percent	Response Count
Paper	76.8%	116
Blackboard Engage	13.2%	20
Google Drive	15.2%	23
Email	26.5%	40
N/A	20.5%	31
Other (please specify)		13

How do you provide written feedback on student work? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Paper	78.0%	117
Blackboard Engage	7.3%	11
Google Drive	9.3%	14
Email	18.7%	28
N/A	20.0%	30
Other (please specify)		4

Please indicate how often you use the following in your classroom:						
Answer Options	**4-daily**	**3-weekly**	**2-bi-weekly**	**1-seldom**	**0- Never**	**N/A - not available**
iPads	32	20	12	21	8	54
Laptops	4	2	10	43	33	49
Classroom computers	55	8	5	9	7	60
Document Camera (e.g. Elmo)	29	13	17	18	18	43
Smartboard	52	4	1	4	6	75
Projector	76	8	0	6	8	45
Lab computers	8	17	21	36	22	41

Please check which Google Apps you are comfortable using. (Check all that apply).		
Answer Options	**Response Percent**	**Response Count**
Google Mail	97.9%	143
Google Drive	69.9%	102
Google Docs	76.7%	112
Google Sheets	26.0%	38
Google Slides	15.1%	22
Google Drawings	4.1%	6
Google Forms	18.5%	27
Google Add-ons	8.2%	12
Google Extensions	4.1%	6
Google Apps	14.4%	21
Google Classroom	4.1%	6

Please check which Blackboard Engage (formerly Edline) functions you use. (Check all that apply).		
Answer Options	**Response Percent**	**Response Count**
Posting homework	36.8%	49
Posting links	44.4%	59

Posting student work	13.5%	18
Posting newsletters	22.6%	30
Posting assignments	40.6%	54
Posting slide show/pictures	26.3%	35
Posting video	17.3%	23
Calendar	34.6%	46
Post syllabus	31.6%	42
Post daily objectives	6.8%	9
Post daily agendas	6.0%	8
Discussion Boards	13.5%	18
Blogs	4.5%	6
Create assessments (quiz, tests, exams)	11.3%	15
Electronic assignment submission (Homework Handin)	7.5%	10
Forms	9.0%	12
N/A	29.3%	39

Three open-ended questions were also asked as part of the survey and representative responses are presented as follows:

What do you appreciate about technology?

- Ability to bring more of the world (music, instruments, videos, etc) into the classroom
- Improved communication with coworkers, professionals in our community, students, and support personnel
- Ability to quickly communicate with staff and parents/guardians
- Allows for better explanation of difficult concepts when reading a text (use of Google to search images, music, etc.).
- Dedham has always been a step ahead in providing technology to the classroom/student, as well as training for staff.
- Great tech support
- How engaging it is for the kids
- I appreciate that we have a knowledgeable technology department that assists us with problems quickly.
- Ii has allowed my students to continue learning at home.
- It allows me to differentiate my instruction, and it has allowed me to use a number of activities in class to reinforce the material taught during the lecture.
- Students get instant feedback to see if they understand the topics taught in the lecture.
- I love how engaged students are when they use technology and that they can be creative with it.
- It can be a time saver. Presentations and documents can be saved and reused
- It is very motivating to this generation of learners.
- Young children are full of questions and it is great to be able to give them quick information.
- It makes planning and teaching easier and learning more interactive and exciting for the students.
- Productivity multiplier effect
- Students are generally more engaged and motivated by the use of technology (though many are also distracted by it).
- Technology allows us to take students outside of the classroom to any time and place.

- Technology engages students to be creative, to use critical thinking skills, to communicate, and to collaborate.
- The speed and efficiency. Your ability to organize
- We have so many resources available at Dedham Public Schools in technology.

What concerns do you have about technology?

- An app can't replace quality instruction. Also saying it only takes 10 minutes, do it daily, isn't practical, all those ten minutes add up and with younger students, nothing only takes ten minutes.
- As teachers, we are managers of the children's greatest resource which is technology. We need to move ahead guiding our students to gain and apply knowledge through this great tool.
- Making sure students are actually learning, not just having fun
- Authenticity of assessment as students cannot demonstrate what they've learned on a computer/technology based assessment if the bulk of the learning was done without it.
- Decreased social interactions, decreased ability for children to entertain themselves
- Distraction, plagiarism
- Distractions for students (often playing games, social media)
- Some students still do not have iPads and/or do not bring them
- I am concerned about misuse of technology
- I am concerned about the number of students who don't take personal responsibility for their devices (broken iPads, uncharged iPads) and the number of games students play on iPads (both apps and online games).
- I am concerned that there are applications that may simplify my job, or help to analyze student work, but time is a problem for me to devote to analyzing data.
- It is a frequent distraction for students in class. I have to spend a lot of time monitoring student iPad use.
- It seems that social media plays an increasingly large role in students' lives, and they can't escape from it. Also, texting has really hurt students' ability to write properly, and I think their ELA grades and MCAS scores will ultimately suffer because of it.
- Making sure access is equitable across the district.
- Need more professional development on how to best integrate technology.
- Not enough classroom computers for all of my students. Not enough iPads for all the special education classrooms
- Security and privacy
- Students can rush through their research to get to the project using technology. The information needs to be as well done as the finished product.
- Students and parents don't access the information that is available to them, so we are now sending information in multiple ways on multiple occasions.
- Also, although I allow the use of technology, I find that many students are unprepared, so I end up needing to provide "paper" copies of things anyway.
- Students are addicted to it. Students are looking at a screen all day long and have no clue what is happening around them.

What is on your "wish list" for technology over the next 3-5 years?

- SmartBoards in all classrooms and monthly professional development on technology use in the classroom - additional time for collaboration
- A better way to access our teacher websites. They are not user friendly and more training is necessary.
- A change in the New World PO program to make it accessible, easier to use
- A device, like chrome books at the high school, that has greater functionality (as compared to iPad) in the classroom
- A few iPads for every classroom Teacher iPads to use Smartnotebook for teachers that work with small groups and travel.
- An App Store that is open more often.
- An iPad cart for the Oakdale old building
- Brain Pop Jr., Pebble Go Database, cart of IPads
- If each student has a personal device I can maximize student learning of math.
- I am very happy with what we have.
- I think as teachers we need to have more free courses available in order to keep up with the latest in technology, apps for education, etc
- I wish that training for technology was whole school during meeting times or by grade-level during grade-level meetings. This would ensure that we all had similar training and then we could collaborate to develop lessons.
- I'd like more PCs/laptops in my classroom, more printing options, digital textbooks that are the most up to date edition, Vernier Probeware, maybe student touchscreen tablets with keyboards or touch screen laptops for more versatility (and not limited by Apple's no Flash or Java)
- iPads
- Mac teacher laptops to sync with iPads
- Notability for all students if still using iPads and better technology for drafting, revising, and editing writing
- Technology should be integrated across the curriculum and used daily.
- To have every student engaged more in technology or the one to one program, regardless of their level or ability.
- Easier access to PowerSchool reports. We are lucky to have the master computer operator Mike Dewar but feel like PowerSchool has gotten harder to use over the years.
- A designated, in-building, IT support staff for the middle school

Parent – Community Survey Summary – December 2014 – January 2015

Responses – 373

Who responded?

	Response Percent
My child is currently enrolled at the Early Childhood Education Center	20.4%
My child is currently enrolled at a Dedham Elementary School	51.1%
My child is currently enrolled at Dedham Middle School	33.1%
My child is currently enrolled at Dedham High School	27.7%
I do NOT currently have a child attending Dedham Public Schools and I am responding as a community member	1.1%

Statement	strongly agree or agree - %
Technology enables a greater variety of instructional methods.	93%
Technology allows for more practical learning opportunities.	86%
Technology supports better connections to learning styles.	80%
Technology allows students to express their learning in more meaningful ways.	63%
Technology helps parents to better monitor student learning and progress.	82%
Technology increases student learning time.	54%
Technology enables students to create more products (presentations, projects, videos, etc.)	92%
Technology provides more writing opportunities.	48%
Technology supports access to more information.	98%
Technology supports access to more current information.	98%
The technology provided by Dedham Public Schools offers equitable	56%

access for students.	
The use of technology increases student engagement.	68%
The use of technology increases students' responsibility for their own learning.	51%
Technology helps parents communicate and collaborate with teachers and school administration in order to become more engaged in their child's learning.	86%
Technology is ***distracting*** to student learning.	19%
Use of technology increases students preparedness for life beyond Dedham Public Schools.	90%
The speed of our Internet access at home is sufficient for our needs.	94%
The speed of the wireless connectivity at home is sufficient for our needs.	93%
There are enough computing devices, including mobile, in our home to support the entire family.	88%
I am satisfied with my ability to submit information (e.g., registrations, updates, fees) electronically to the schools.	80%

Outside of school, how many hours, on a daily basis, does my child use various technologies for educational purposes?

Answer Options	Response Percent	Response Count
none	11.8%	44
1 hour	55.6%	207
2 hours	23.1%	86
3 hours	6.5%	24
4 hours	1.3%	5
more than 4 hours	1.6%	6

Outside of school, how many hours, on a daily basis, does my child use various technologies for entertainment purposes? (If you have multiple students, please share an average range.)

Answer Options	Response Percent	Response Count
none	3.2%	12
1 hour	43.8%	162
2 hours	31.9%	118

3 hours	11.6%	43
4 hours	4.1%	15
more than 4 hours	5.4%	20

Outside of school, how many hours, on a daily basis, does my child use various technologies for socializing purposes? (If you have multiple students, please share an average range.)

Answer Options	Response Percent	Response Count
none	44.7%	166
1 hour	26.1%	97
2 hours	13.7%	51
3 hours	7.5%	28
4 hours	1.6%	6
more than 4 hours	6.2%	23

Which of these devices do you have for your own use? (Check all that apply)

Answer Options	Response Percent	Response Count
Smartphone	87.8%	325
Tablet (e.g., iPad)	72.2%	267
Laptop	73.8%	273
Desktop computer	55.9%	207
Digital reader (e.g, Kindle, Nook)	39.5%	146
Other (please specify)		7

Which of these devices do your child/children have for their own use? (Check all that apply)

Answer Options	Response Percent	Response Count
Smartphone	56.5%	186
Tablet (e.g., iPad)	73.3%	241
Laptop	40.4%	133
Desktop computer	32.2%	106
Digital reader (e.g, Kindle, Nook)	26.1%	86
Other (please specify)		32

How would you rate your technology skills?

Answer Options	Response Percent	Response Count
Advanced	33.7%	125
Average	63.3%	235
Beginner	3.0%	11

Rank your preferred methods of getting school information (e.g. events, services, issues, emergencies).					
Answer Options	Most Preferred	Neutral	Least Preferred	Never Use	Response Count
Dedham Public Schools website	148	134	39	27	348
Teacher class website	114	122	27	76	339
Email from the school	332	34	1	0	367
Phone call from the school	171	118	62	1	352
Social media (e.g., Facebook, Twitter)	57	101	95	89	342
Word of mouth	28	80	190	40	338
Newspaper	17	97	123	102	339
Local Cable TV Channels (Public, Municipal or Education)	9	55	111	163	338
U.S. Mail	69	162	99	12	342
Paper delivered by student	133	145	61	9	348

If you access the local cable TV channels, please indicate what you watch (check any that apply).		
Answer Options	Response Percent	Response Count
Information sessions for parents	27.1%	23
Recorded school assemblies/events	45.9%	39
Sporting events	25.9%	22
Art/Performance events	35.3%	30
School Committee meetings	36.5%	31
Student-created films-programming	22.4%	19
Other: generally none, no cable or rarely watch		22

Do you use Dedham's Public School's electronic payment system (Unipay)?		
Answer Options	Response Percent	Response Count
Yes	43.3%	159
No	46.6%	171
N/A	10.1%	37

Three open-ended questions were also asked as part of the survey and representative responses are presented as follows:

What do you appreciate most about educational technology?

- Kids can utilize technology to support writing, graphic, and computational programs for their assignments. These are skills they will need as adults.
- Teachers can differentiate instruction based on my son's interests and abilities.
- Help students stay organized by accessing homework and submit assignments online.

- Access to interactive and adaptive learning modules (quizzes, FASTTmath, etc.)
- Active use of the cloud to enable my middle school child to work on projects both in school and at home.
- Interaction with other students for group projects.
- Appreciate that Dedham Public Schools is actively seeking to constantly improve technology.
- I am happy that Dedham cares about technology and equips our classrooms with the latest.
- Educational technology provides access to a variety instructional methods.
- Educational technology helps my dyslexic son stay at grade level.
- It enables my children to learn more and "compete" with other towns educational standards
- Students can learn at their own pace, access current information, and use diverse methods to present information.
- My son is non-verbal and is using an Advanced Audio Coding (AAC) app on the iPad to communicate and request items.
- Programs like Raz-Kids seem to differentiate instruction appropriately, and offer high interest reading without a lot of teacher labor. I like the potential to access information more easily, and the potential for improved home-school communication.
- The amount of information available to the students and the speed at which it can be obtained.
- The ease of use and availability of a variety of learning tools online.
- The ability to create your own tests and quiz materials.
- The opportunities for learning and creativity are endless.
- We are preparing students for jobs that do not even exist.
- Creativity has to be infused in all educational experiences so students are prepared for the real world.
- The opportunity to learn current professional tools (excel, programming languages, other software programs, etc.).

What concerns do you have about technology?

- Having technology in classrooms with younger children -before they can read and write
- Sometimes there can be too many restrictions and sometimes not enough.
- It needs to be balanced with relational and interactive learning.
- I think it is beneficial for learning when implemented well, but I think it could be detrimental if not.
- Student’s ability to sift through all the information and choose what is relevant.
- It seems to me my child and others don't really differentiate between being on line for school vs. entertainment vs. socializing
- Social media sites for young kids who do not know how to monitor themselves and/or emotionally handle harassment by other students
- It takes kids away from communication skills. There is no real interaction in person and hence a balance is very necessary.
- I don't want to have to master and monitor several different websites (PowerSchool, class site, school site, Blackboard, etc.) to avoid missing important information
- Cyber bullying. Cheating. Privacy.
- The use by teachers is inconsistent. Not all teachers are on the same page when it comes to the information needed for each class. Grades homework, communication, etc. are often not updated.

- Needs to be presented in such a way that the children understand and are able to engage effectively.

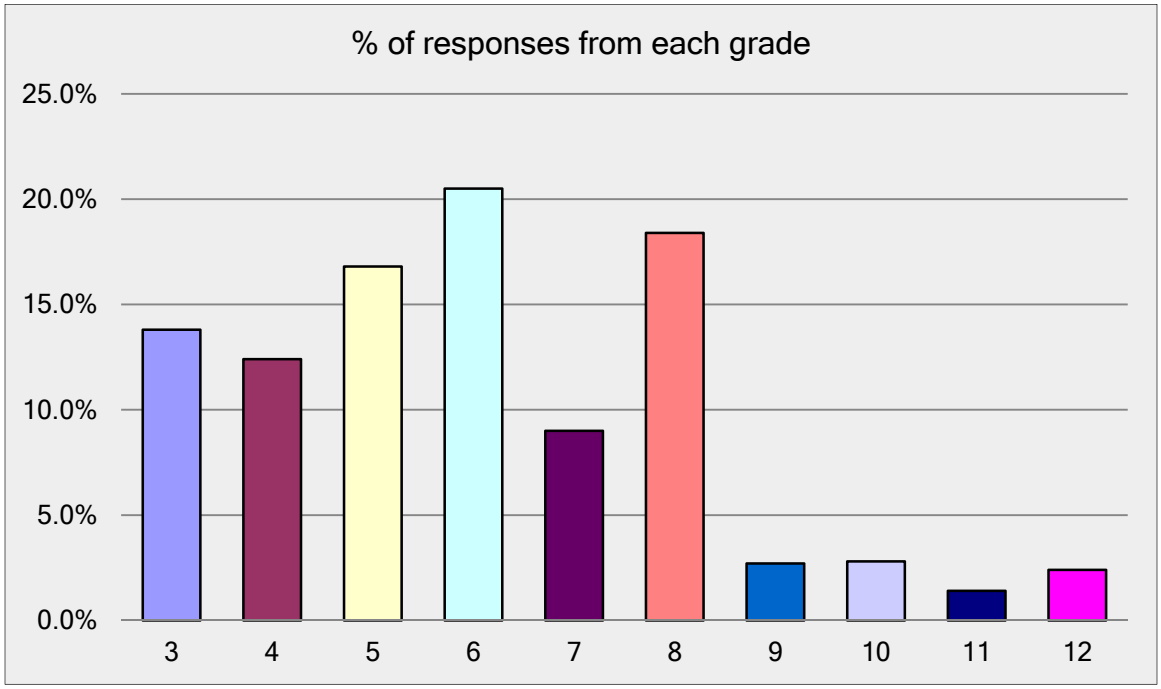
What is on your "wish list" for technology in Dedham Public Schools over the next 3-5 years?

- That every DPS student has access to a computer.
- To keep the school calendar and forms that parents need updated on the school website.
- My wish is more advanced notice via multiple platforms as everyone has a preferred method.
- iPads are not as useful as notebooks.
- 1:1 device program - iPad or Chromebooks - for the Middle School.
- The teachers should use Blackboard more consistently for engaging parents and students.
- I hope that Dedham High will continue to update with newer technology in the next 3-5 years and stay competitive with other programs.
- I would love to see increased use of Google Classroom, online school calendar including all timelines and key dates.
- More opportunities for students to use online apps for school work when outside of school.
- Adequate training for staff on technology devices and applications that will meet the needs of the students
- Making sure that teachers and students continue to have access to the technology that will meet their needs
- Parent training
- Emphasize writing skills, personal communication, and creativity.
- More "connectivity" at ECEC.
- At my school we are cautiously using Google drive, and exploring Schoology. I am curious about the potential pros and cons of both systems.
- Although I know many schools use iPads for technology, they are really not very practical. They are good for doing research, but it seems the students need to also have access to computers to write papers, etc. It seems that some kind of laptop would be really much more practical.
- I hope that every year teachers go over the dangers of technology and help kids learn how to use their devices in a safe way that protects their privacy. Parents should be offered a course on this too.
- The websites must be more up to date.
- I would like to see a master plan developed for how technology will be used consistently throughout the Dedham Public to enhance the students learning experiences from preschool through High School.
- More experimentation with online learning strategies (think Khan Academy.)
- Use of intuitive and age appropriate Learning Management System with collaboration capabilities for parents
- That every student have access via an assigned tablet, laptop etc.
- Technology in Dedham Public Schools is doing an awesome job. I wish more success over the next 3-5 years for Dedham Schools technology.
- More consistency in how the teachers use the technology.
- DHS should explore more robust computer science (security / coding / etc.) courses beginning in 9th grade.

DPS Student IT Survey Summary - December 2014 – January 2015

Responses – 875

I am in grade:		
Answer Options	Response Percent	Response Count
3	13.8%	119
4	12.4%	107
5	16.8%	145
6	20.5%	177
7	9.0%	78
8	18.4%	159
9	2.7%	23
10	2.8%	24
11	1.4%	12
12	2.4%	21



Statement	strongly agree or agree - %	strongly agree, agree, or neutral - %
Technology allows me to better express my understanding of what I am learning.	61%	88%
Technology helps me to get faster or better feedback on my answers to questions and assignments.	66%	86%
Technology increases my learning time.	46%	76%
Technology enables me to create more products (presentations, projects, videos, etc.).	76%	87%
Technology provides me with more writing opportunities.	54%	79%
The use of technology increases my motivation to learn.	50%	78%
The use of technology helps me to take greater responsibility for my own learning.	45%	77%
Technology helps me to communicate and collaborate with teachers.	41%	67%
Technology helps me to communicate and collaborate with other students.	60%	77%
Technology is **distracting** to my learning.	14%	30%
Internet connectivity, at school, is adequate for student and teacher needs.	60%	81%

During the average day, I use technology in school approximately:

1 hour	2 hours	3 hours	4 hours	more than 4 hours	Rating Average	Response Count
528	146	53	26	67	1.73	820

During the average day, I use technology for learning outside of school approximately:

1 hour	2 hours	3 hours	4 hours	more than 4 hours	Rating Average	Response Count
428	178	71	32	101	2.01	810

During the average day, I use technology for entertainment approximately:

1 hour	2 hours	3 hours	4 hours	more than 4 hours	Rating Average	Response Count
194	196	121	60	248	2.97	819

During the average day, I use technology for socializing approximately:

1 hour	2 hours	3 hours	4 hours	more than 4 hours	Rating Average	Response Count

335	160	95	43	135	2.33	768

I use technology to: (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Stay organized (e.g. calendars, reminders)	39.9%	320
Research	81.2%	651
Collect, Analyze and Report Data	29.4%	236
Study	58.9%	472
Take notes	33.8%	271
Internet/web activities	75.4%	605
Use specialized apps	52.4%	420
Create (e.g. projects, presentations)	48.3%	387
Access the library media center databases	23.6%	189
Communicate (e.g. Instagram, Snapchat, Twitter, Facebook, email)	63.3%	508
Collaborate (e.g. Google Drive/Docs, Evernote, email)	35.3%	283
Use Twitter or blogs to stay informed	21.3%	171
Other (please specify)		156

How do you prefer to submit your work? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Paper	79.9%	616
Blackboard Engage (formerly Edline)	17.8%	137
Google Drive	28.7%	221
Email	23.5%	181
Other (please specify)		55

How do you prefer to get written feedback on your work? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Paper	80.5%	625
Blackboard Engage (formerly Edline)	15.3%	119
Google Drive	18.2%	141
Email	22.9%	178
Other (please specify)		38

Please indicate how often you use the following in school:							
Answer Options	4-daily	3-weekly	2-bi-weekly	1-seldom	0-never	N/A	Response Count
iPads	104	50	49	97	278	158	736
Laptops	38	57	164	276	121	66	722
Classroom computers	79	131	196	207	88	36	737
Lab computers	49	143	254	170	83	24	723
SmartBoard	443	74	42	74	84	24	741

Please check which Google Apps you are comfortable using. (Check all that apply)		
Answer Options	Response Percent	Response Count
Google Mail	57.2%	329
Google Drive	66.6%	383
Google Docs	48.5%	279
Google Sheets	18.3%	105
Google Presentations	37.7%	217
Google Drawings	31.3%	180
Google Forms	12.3%	71
Google Add-ons	12.9%	74
Google Extensions	11.5%	66
Google Apps	50.4%	290
Google Classroom	19.1%	110